United States Department of
Health & Human Services

Enterprise Architecture
Program Management Office

HHS Enterprise Transition Strategy 2009

Version 1.0
June 2009

Approvals

The Health and Human Services (HHS) Transition Strategy describes gaps identified between current and future states of the organization, and plans and activities proposed or initiated by the Department and its Operating Divisions to fill those gaps. The Transition Strategy also provides HHS strategies and interim milestones for implementing planned measures to achieve progress towards its target vision.

Approved by:

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Date: 6/10/09

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Document Change History

Version Number	Release Date	Summary of Changes
n/a	2/28/2008	Previous Transition Plans were produced in 2005, 2006, 2007 and 2008
0.5	3/15/2009	Transition contents revised to reflect EAAF v3.0 requirements
0.9	5/29/2009	Re-structuring of document based on OMB format and content guidance and inclusion of Recovery Act related initiatives
1.0	6/9/2009	Segment sections updated to reflect updated EASR information

1 Introduction

The Department of Health and Human Services (HHS) Office of Enterprise Architecture manages an Enterprise Architecture (EA) Program, under the leadership of the HHS Chief Enterprise Architect (CEA). The Office of Enterprise Architecture within the Office of the Chief Information Officer (OCIO) oversees many of the Department's core strategic planning and accountability functions, including capital planning and investment control, information resources strategic planning, and of course, enterprise architecture. The HHS EA Program fulfills multiple Federal mandates related to planning and managing information technology (IT) investments and supporting organizational effectiveness at the Department, Staff Division (STAFFDIV), and Operating Division (OPDIV) levels, and with relevant government-wide initiatives.

Key legislative and management drivers for the HHS EA Program include the Information Technology Management Reform Act of 1996 (Clinger-Cohen), the E-Government Act of 2002, the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the Government Performance Results Act of 1993 (GPRA), and guidance from the Office of Management and Budget (OMB) including Circulars A-11, A-127, and A-130. In addition, the HHS EA Program ensures the Department's compliance with OMB's Federal Enterprise Architecture (FEA) and Federal Transition Framework (FTF), and responds to regular EA maturity assessments performed by the Government Accountability Office (GAO) and OMB.

1.1 Document Structure

This Transition Strategy is organized using the following structure:

Part 1 Introduction (this section) provides a general description of the purpose, scope and objectives, audience, approach, and methodology for the HHS Enterprise Transition Strategy.

Part 2 Transition Planning Drivers references strategic goals and objectives, internal and external mandates, Departmental commitments and obligations, and other drivers influencing the declaration, prioritization, sequencing, and execution of HHS initiatives.

Part 3 Major HHS Initiatives summarizes the major current or planned initiatives for HHS in 2009, especially those in support of goals and objectives articulated in the HHS Strategic Plan and HHS IRM Strategic Plan. This section addresses segments in-progress or completed during the previous planning year, and also identifies segments planned but not yet initiated. Where appropriate, planning milestones and other relevant information is included from the FY2010 prospective IT investment portfolio.

Appendix A HHS Segments lists the 72 segments identified by HHS and submitted to OMB in 2008, with the current status of each segment.

Appendix B HHS IT Investment Alignment summarizes HHS major and tactical IT investments included in the FY2010 IT investment portfolio, showing the primary alignment of each investment to HHS segments.

Appendix C HHS Alignment to the FTF summarizes HHS IT investment alignment to each of the 42 Federal Transition Framework initiatives that are either declared mandatory or otherwise deemed relevant for HHS.

Appendix D provides a listing and descriptions of acronyms and abbreviations using in the document.

Appendix E provides a listing of references used in the preparation of this document.

1.2 Purpose

The HHS Enterprise Transition Strategy is an annual checkpoint on the status and performance of activities and initiatives currently in progress that move the Department closer to its strategic vision. HHS produces and maintains a five-year Strategic Plan, in which HHS describes a long-term vision for the Department, establishes enterprise goals and objectives, and highlights areas of emphasis and proposes initiatives on which HHS will focus during the strategic planning timeline. The current HHS Strategic Plan covers the period from 2007 to 2012. The HHS Office of the Chief Information Officer is responsible for a similar five-year strategic plan focused on information resources management. The most recent version of the HHS IRM Strategic Plan also covers the 2007-2012 planning horizon. Both strategic plans are updated every three years. The Enterprise Transition Strategy incorporates progress measures for initiatives from both strategic plans.

The Enterprise Transition Strategy provides an annual status of accomplishments made in the previous year and anticipated progress to be made in the coming year. It reflects planned budgetary commitments as captured in the HHS IT portfolio and addresses mandated activities regardless of their actual funding status. In this way the Enterprise Transition Strategy can help HHS draw attention to obligations, strategic gaps, and other risk areas, and provide recommendations for mitigating any such risks. The Enterprise Transition Strategy is also an important tool to support accurate alignment of IT investments to business strategies and programs. This alignment helps HHS improve its programs' performance as measured in the past by the Office of Management and Budget's Program Assessment and Rating Tool (PART), and in the future by the new Performance Improvement and Analysis Framework proposed by OMB.

1.3 Overview of this Document

This document, the HHS Enterprise Transition Strategy 2009, describes the strategy and sequencing to evolve from HHS' current baseline, representing fiscal year 2009, to achieve the strategic vision articulated in the current HHS Information Resources Management Strategic Plan 2007-2012 and HHS Strategic Plan 2007-2012. The Enterprise Transition Strategy has a shorter-term perspective than the strategic plans, generally covering a three-year span comprising the current fiscal year, the subsequent fiscal year (for which the proposed IT investment portfolio has already been approved), and the following fiscal year that is the focus of the current budget planning cycle. For the 2009 Transition Strategy, the planning horizon covers fiscal years 2009, 2010, and 2011, and includes priorities and initiatives proposed under the American Recovery and Reinvestment Act of 2009. The transition from the baseline architecture to a target architecture consistent with the Department's vision is an iterative process.

The Transition Strategy focuses on transitional activities and performance milestones for initiatives that, when fully implemented, will become part of the target architecture for HHS. Initiatives and projects that have already achieved implementation – including investments in operations and maintenance or "steady-state" phases – are already part of the target architecture and are therefore not emphasized in the Enterprise Transition Strategy.

The HHS Enterprise Transition Strategy 2009 describes the major strategic and tactical drivers influencing the investments, initiatives, and activities on which HHS will focus in 2009-2011. Transition drivers include internal policies, plans, and initiatives as well as external mandates such as legislation, inter-agency agreements, and government-wide initiatives. The scope of this document includes significant HHS initiatives and programs, and plans and activities undertaken to align to or comply with cross-agency or other federal initiatives in which HHS participates.

Related documents that provide additional details of the HHS Enterprise Transition Strategy and the enterprise architecture's role in enterprise transition include:

- The HHS Strategic Plan 2007-2012
- The HHS Information Resources Management Strategic Plan 2007-2012
- The HHS Performance Management Plan
- The HHS EA Governance Plan
- The HHS EA Program Management Plan
- The HHS EA Program Communications Plan
- The HHS EA Framework

This plan complements related HHS policies and guidance, including:

- HHS OCIO Policy for IT Capital Planning and Investment Control
- HHS OCIO CPIC Procedures
- HHS OCIO IT Policy for Enterprise Architecture
- HHS Enterprise Performance Life Cycle
- HHS Information Security Program Policy

1.4 Audience

The intended audience for the Transition Strategy includes all HHS EA stakeholders, as well as those interested in the operational activities of the HHS EA Program. These stakeholders include:

- HHS Assistant Secretary for Resources and Technology (ASRT)
- HHS Chief Information Officer (OCIO)
- HHS Deputy CIO and Director of the Office of Enterprise Architecture (OEA)
- HHS Performance Improvement Officer
- HHS Information Technology Investment Review Board (ITIRB)

- HHS CIO Council

- HHS Enterprise Architecture Review Board (EARB)

- Program Staff and Contractors supporting the HHS Office of Enterprise Architecture

- HHS OPDIVs and staff involved Enterprise Architecture activities

- HHS OPDIV investment, business, and technical review boards

- HHS and OPDIV Capital Planning and Investment Control (CPIC) programs and staff

- HHS and OPDIV IT Program and Project Managers and staff, including contractors

- Business Owners of programs, investments, and business functional areas and processes

- OMB Line of Business programs and staff, including Federal Health Architecture (FHA), Human Resources LOB, Financial Management LOB, Grants Management LOB, Information Systems Security LOB, and IT Infrastructure Optimization LOB

- Federal Health Information Technology programs and staff, including the Office of the National Coordinator for Health IT

- Programs and staff of e-Government and Federal Transition Framework initiatives in which HHS participates or the products of which HHS is obligated to incorporate in its own planning and operations.

1.5 Transition Planning Approach

The enterprise architecture is a strategic resource that helps HHS plan, invest in, and implement information technology solutions to meet business needs and help manage the IT investment portfolio. It provides a mechanism for understanding and managing complexity and change. EA products identify the alignment of organizational business and management processes, data flows, and technology. They also enable identification of capability gaps and duplication. The role of the enterprise architecture within the broader cycle of strategic planning and execution is reflected in the initial "Architect" phase of the iterative performance improvement lifecycle described by OMB, as depicted in Figure 1 (Source: FEA Practice Guidance, December 2006).
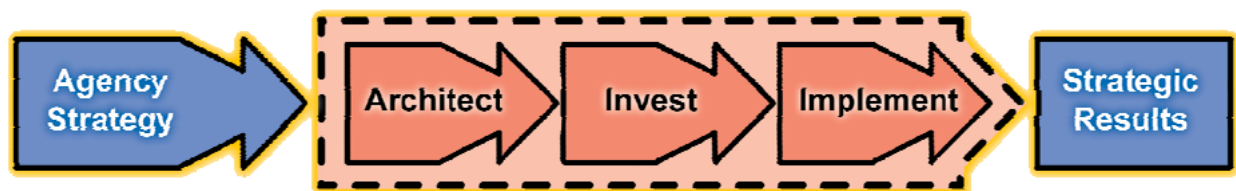
Figure 1: Performance Improvement Lifecycle

HHS is a large and diverse organization, with a broad mission and corresponding functional responsibilities at both the Department level and, especially, among the Operating Divisions. In order to identify mission-specific information resources management goals and objectives, the

IRM strategic planning process is structured around the nine business areas defined by the HHS Office of Enterprise Architecture:

Figure 2: HHS Business Areas

Mission Business Areas	Non-Mission Business Areas
• Access to Care	• Information Resources Management
• Health Care Administration	• Management of Government Resources
• Health Care Delivery	• Planning and Accountability

• Health Care Research and Practitioner Education • Human Services • Population Health Management and Consumer Safety	

These business areas are used by HHS to help identify and coordinate work on common or shared business functions within and across the Department, Operating Divisions, and Staff Divisions, to group HHS IT investments, and to help apply appropriate stakeholders, subject matter experts, and other resources to strategic and transition planning activities. Since the publication of the most recent HHS Strategic Plan, these business areas also are used to facilitate program-to-investment alignment, as the business areas correspond closely to the strategic areas defined in the HHS Strategic Plan, as shown in Figure 3, below.
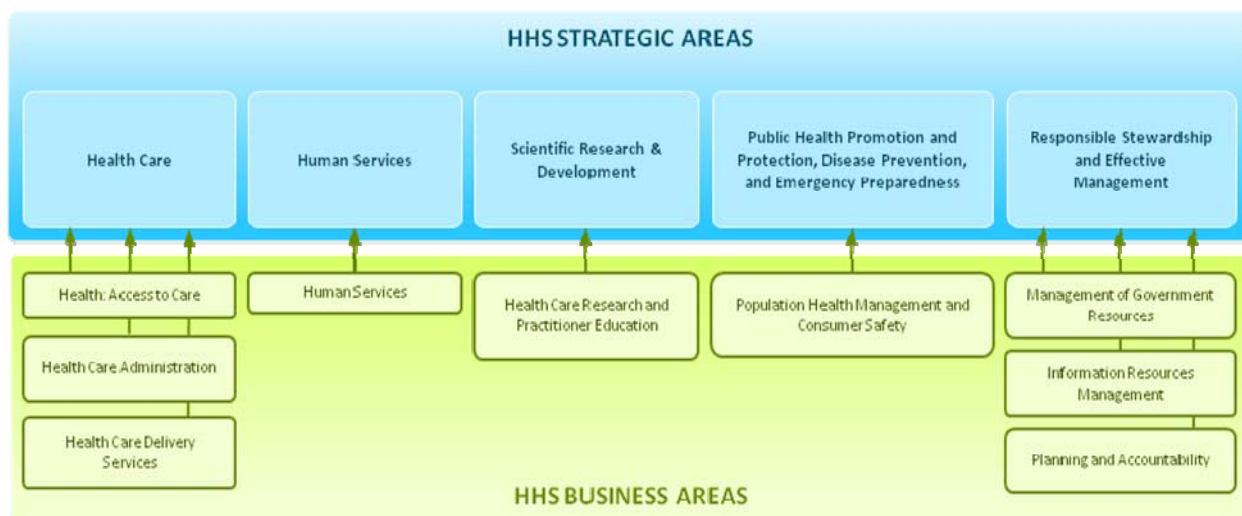
Figure 3: Alignment Between HHS Strategic Areas and HHS Business Areas

Each of the nine business areas is further decomposed into segments. Segments are discrete sets of business functions grouped according to similarities in mission, goals, objectives, and commonality of services and business processes. By focusing IRM strategic planning activities on segment-based perspectives, HHS is able both to capture and reflect mission-specific priorities and to identify commonalities across segments and across the business areas in which the segments reside. This perspective helps ensure that strategic and tactical initiatives are planned and sequenced appropriately to focus appropriate efforts and resources on the areas of greatest impact for the enterprise. Individual initiative programs and investments maintain their own transition plans as part of program and project management, including establishing performance measures and milestones. In addition, HHS maintains Segment Transition Plans for each of the segments under development or for analysis after development. The HHS Enterprise Transition Strategy reflects a broader perspective covering all major initiatives, cross-segment priorities, and major milestones and commitments from cross-agency and government-wide initiatives. Beginning in 2008, HHS and other federal agencies subject to the OMB Enterprise

Architecture Assessment Framework produced an authoritative list of architecture segments. The list of HHS segments appears at Appendix A.

1.6 Methodology

The HHS Enterprise Transition Strategy is produced and updated as a component of the annual strategic planning cycle. Beginning in 2006, the information resources management strategic planning process was modified to adopt a segment-based planning approach as a complement to enterprise-wide planning. The HHS Office of Enterprise Architecture convenes and facilitates a series of strategic and transition planning workshops with business and IT representation from all HHS Operating Divisions and many Staff Divisions. The scope of activities for each workshop includes a review of existing strategic goals and objectives from both the HHS Strategic Plan (i.e., the business strategy) and the HHS IRM Strategic Plan, a summary of current activities and IT investments, and a discussion of progress on initiatives against performance outcomes.

Both business-focused and IRM strategic planning follow a similar process for the development and update of the HHS strategic plans. At the broadest strategic level, planning process participants identify long-term goals, organized according to mission-oriented delineations of major activities across the Department and its Operating Divisions (OPDIVs). The goals articulate what the Department wants to achieve. A set of primary objectives is specified for each goal, to describe with more granularity what the Department will accomplish in pursuit of its goals. The planning process then focuses on the identification of discrete outcomes corresponding to different goals and objectives that, if realized, would demonstrate successful achievement of the goals and objectives. This hierarchy of goals, objectives, and outcomes provides the structure for the HHS Strategic Plan and the HHS IRM Strategic Plan.

The annual review of HHS strategic planning documentation and the update of the Enterprise Transition Strategy identifies current and existing initiatives and investments approved for inclusion in the IT portfolio for the current planning year. This process also identifies additional objectives and outcomes that may not have been incorporated in the strategic plans. Participants analyze the existing initiative and investment information against the collective set of objectives and intended outcomes, to identify any gaps between the baseline and target that are not adequately addressed by existing plans. This gap analysis, performed for each of the nine HHS Business Areas, helps identify new or emerging themes in terms of required or desired capabilities that information resources can deliver. The existence of gaps in existing plans can also influence revision or re-prioritization of initiatives and planned investments, to encourage the most effective use of IRM resources.

Performance measures provide another important input to transition planning. All current or proposed IT investments specify performance measurement indicators used to evaluate the success of the initiatives funded by the investment and, in most cases, to measure interim progress of the initiatives during their life cycles. HHS has developed a performance management framework – applicable across all of the business areas – that provides guidance to investment owners as to appropriate types of measures that should be specified for their initiatives or projects. Using a common performance management framework across all IT investments helps HHS implement consistent performance-based evaluation of initiatives, and

use the results of that evaluation to help determine transition strategy and adjust sequencing plans as necessary.

The HHS approach to performance management recognizes the difference inherent in relevant performance measures and milestones depending on the status and relative maturity of a program, project, or investment. Initiatives and activities identified in the Enterprise Transition Strategy have, for the most part, not yet achieved full implementation, completion or operational capability, so the milestones used to track the performance of these initiatives and activities are measures of implementation.[1] Once full implementation and operational capability is achieved, HHS emphasizes the use of operational or outcome-driven performance measures and milestones, which are the focus of the HHS Performance Management Plan.

The Enterprise Transition Strategy addresses strategic planning drivers both internal and external to HHS, and several different types of initiatives and activities:

- Current and proposed investments up to and including the fiscal year 2010 IT portfolio;
- Segments prioritized and initiated for architectural development;
- Program-based initiatives, spanning multiple investments and projects;
- Strategic themes and potential new initiatives from the strategic planning process;
- Health IT initiatives in which HHS is a partner, member, or participant;
- Cross-agency federal initiatives including the Federal Transition Framework.

A single HHS initiative or activity may correspond to more than one of the above drivers.

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[1] The use of distinct kinds of measures and milestones to reflect implementation is consistent with federal guidance on performance management and the selection of appropriate performance measures, including NIST Special Publication 800-55, *Security Metrics Guide for Information Technology Systems* and the Government Performance and Results Act of 1993 (GPRA).

2 Transition Planning Drivers

This section summarizes internally and externally produced drivers influencing HHS initiatives. The Enterprise Transition Strategy is in many ways derivative of the HHS Strategic Plan and HHS Information Resources Management Strategic Plan, as both of those planning documents describe long-term vision for HHS and the goals, objectives, and outcomes related to realizing that vision. Initiatives highlighted in the Enterprise Transition Strategy include those explicitly called out in strategic planning documents published by HHS.

2.1 HHS Strategic Goals and Objectives

The HHS Strategic Plan 2007-2012 declares four goals (strategic planning areas), and four objectives corresponding to each goal. All HHS mission-related initiatives, programs, and investments have among their business drivers one or more of these goals and objectives. Initiatives, programs, and investments outside the core mission areas may align to one or more of these goals and objectives, or to the broad-based strategic goal of Responsible Stewardship and Effective Management.

Table 1: HHS Strategic Goals and Objectives

Goal 1: Health Care
Improve the safety, quality, affordability and accessibility of health care, including behavioral health care and long-term care.
Objective 1.1: Broaden health insurance and long-term care coverage.
Objective 1.2: Increase health care service availability and accessibility.
Objective 1.3: Improve health care quality, safety, cost and value.
Objective 1.4: Recruit, develop and retain a competent health care workforce.
Goal 2: Public Health Promotion and Protection, Disease Prevention, and Emergency Preparedness
Prevent and control disease, injury, illness and disability across the lifespan, and protect the public from infectious, occupational, environmental and terrorist threats.
Objective 2.1: Prevent the spread of infectious diseases.
Objective 2.2: Protect the public against injuries and environmental threats.
Objective 2.3: Promote and encourage preventive health care, including mental health, lifelong healthy behaviors and recovery.
Objective 2.4: Prepare for and respond to natural and man-made disasters.
Goal 3: Human Services
Promote the economic and social well-being of individuals, families and communities.
Objective 3.1: Promote the economic independence and social well-being of individuals and families across the lifespan.
Objective 3.2: Protect the safety and foster the well-being of children and youth.
Objective 3.3: Encourage the development of strong, healthy and supportive communities.
Objective 3.4: Address the needs, strengths and abilities of vulnerable populations.
Goal 4: Scientific Research and Development
Advance scientific and biomedical research and development related to health and human services.
Objective 4.1: Strengthen the pool of qualified health and behavioral science researchers.
Objective 4.2: Increase basic scientific knowledge to improve human health and development.
Objective 4.3: Conduct and oversee applied research to improve health and well-being.
Objective 4.4: Communicate and transfer research results into clinical, public health and human service practice.

The HHS IRM Strategic Plan 2007-2012 also specifies a set of IRM-specific goals and corresponding objectives, in a format that mirrors that found in the HHS Strategic Plan.

Table 2: HHS IRM Strategic Goals and Objectives

Goal 1: Provide a secure and trusted IT environment.
Objective 1.1: Enhance confidentiality, integrity, and availability of IT resources.
Objective 1.2: Protect IT assets and resources from unauthorized access or misuse.
Objective 1.3: Enhance security awareness and role-based training department-wide, inclusive of privacy.
Objective 1.4: Ensure security is incorporated into the lifecycle of every IRM asset.
Goal 2: : Enhance the quality, availability, sharing, and delivery of HHS information and services to citizens, employees, businesses, and government
Objective 2.1 Provide an intuitive web-presence to quickly and reliably deliver information and customer services internally and externally.
Objective 2.2: Leverage web services to conduct business securely with customers and stakeholders.
Objective 2.3: Ensure the availability and dissemination of information in preparation of or in response to local and national emergencies, significant business disruptions, or disaster Interruption.
Objective 2.4: Establish COOP planning, testing, and training.
Objective 2.5: Provide technologies enabling both HHS internal stakeholders (e.g., employees, OPDIVs, STAFFDIVs) and external stakeholders (e.g., States, Municipalities, vendors) to work collaboratively and share knowledge.
Goal 3: Implement a robust, optimized, enterprise information technology infrastructure and common administrative systems that will foster innovation and collaboration.
Objective 3.1: Establish a basis to achieve further interoperability and communication among operating divisions through an enterprise approach.
Objective 3.2: Establish a capital asset replacement program.
Objective 3.3: Ensure an IT infrastructure foundation adequate to support new mandates and major initiatives.
Objective 3.4: Improve fee-for-service (FFS) models to ensure full cost recovery (annual, capital and refresh).
Objective 3.5: Evolve/mature contingency planning for IT infrastructure.
Objective 3.6: Maximize the value of technical investments.
Goal 4: Enable and improve the integration and quality of health and human services information.
Objective 4.1: Improve health outcomes by developing and using standard data, processes, and vocabularies.
Objective 4.2: Integrate critical cross-segment health and human services information across HHS, private industry, first responders, other health care providers and the public through implementation of the following steps: ⇨ Data Harmonization – Semantic Web Structure ⇨ Ontology Development and Adoption – Knowledge, Framework ⇨ Business/Administrative Data Sharing ⇨ Segment Data Integration ⇨ Public Health Data Governance ⇨ Data Quality
Objective 4.3: Develop and/or adopt public health ontologies.
Objective 4.4: Improve data quality through an effective governance architecture and data management/stewardship procedures.
Goal 5: Achieve Excellence in IRM/IT Governance and Management Practices Identified
Objective 5.1: Strengthen HHS enterprise-wide processes for collaborative IT strategic planning, capital planning, and investment control.

Objective 5.2: Apply sound standards-based lifecycle, project management and performance measurement processes to IT projects.
Objective 5.3: Develop and implement an IT human capital plan to guide the recruitment, retention, and skill development of staff.
Objective 5.4: Ensure dedicated funding steams for IS/IT management improvement and innovation.
Objective 5.5: Adopt comprehensive best practices-based IT management and governance.
Objective 5.6: Enhance the efficiency and effectiveness of competitive sourcing for IT services.
Goal 6: Implement SOA at HHS to promote interoperability
Objective 6.1: Develop HHS Enterprise SOA guidance outlining strategy, standards, and best practices.

2.2 HHS Strategic Planning Initiatives

Both the HHS Strategic Plan and HHS IRM Strategic Plan identify key information technology-related initiatives recommended for particular emphasis in helping the Department make progress towards realizing its strategic vision.

Information Technology Initiatives in the HHS Strategic Plan

1. Secure One HHS
2. Infrastructure Management
3. Health Information Technology
4. HHS Data Council
5. Confidentiality and Data Access Committee
6. Web Services
7. E-Government
8. Integrated Planning
9. Knowledge Management

Information Resources Management Initiatives in the HHS IRM Strategic Plan

1. E-Gov Initiatives
2. Federal Transition Framework Initiatives
3. Enterprise Architecture
4. Information Security
5. Optimization of IRM shared infrastructure
6. ITIM and Performance Management
7. Federated SOA infrastructure
8. Health Information Technology
9. Communications and Collaboration

The set of initiatives emphasized in the strategic plans is an input to transition planning in several contexts, including capital planning and investment control, budget preparation and investment prioritization, and the identification and prioritization of HHS enterprise segments to be documented and analyzed through segment architecture development. Three segment architecture development efforts initiated during fiscal year 2008 and continued over the past year correspond to initiatives that appear in both the HHS Strategic Plan and the HHS IRM Strategic Plan: Information Security (reflected as Secure One HHS in the Strategic Plan and Information Security in the IRM Strategic Plan); IT Infrastructure Management (reflected as Infrastructure Management in the Strategic Plan and ITIM and Performance Management in the IRM Strategic Plan); and Information Sharing Environment (ISE) (related to Health IT in both plans). Federal Transition Framework initiatives remain an area of emphasis for HHS transition planning activities, particularly for those initiatives where HHS has a leading or major contributing role to the initiative. The FTF programs with corresponding segment architecture development activity include IT Infrastructure Management segment (corresponding to the Infrastructure Optimization Initiative), Grants Management (corresponding to Grants.gov and the Grants Management Line of Business of which HHS is the lead agency), and ISE (corresponding to the Information Sharing Environment and FHA initiatives).

2.3 Major External Drivers

A summary of types of external drivers and specific instances is provided in Table 3.

Table 3: External Transition Planning Drivers

Type	Driver
Legislation	American Recovery and Reinvestment Act of 2009
	E-Government Act of 2002
	Federal Information Security Management Act of 2002 (FISMA)
	Information Technology Management Reform Act of 1996 (Clinger-Cohen)
	Paperwork Reduction Act of 1995 (PRA)
	Government Performance and Results Act of 1993 (GPRA)
	Health Insurance Portability and Accountability Act of 1996 (HIPAA)
Executive Branch	President's Management Agenda (PMA)
	Homeland Security Presidential Directive 7 (HSPD-7)
	Homeland Security Presidential Directive 12 (HSPD-12)
	Homeland Security Presidential Directive 20 (HSPD-20)
Office of Management and Budget	Circular A-11
	Circular A-16
	Circular A-76
	Circular A-127
	Circular A-130
	Federal Transition Framework (FTF)

2.4 HHS Enterprise Architecture Principles

The HHS EA Program established a set of nine overarching principles that help provide a concise encapsulation of target-state outcomes consistent with the vision described in the HHS IRM Strategic Plan, "Comprehensive information management solutions are provided to match the critical needs of HHS and its stakeholders."

1. HHS is citizen-centered and business-driven, with services defined and delivered based on the needs of their consumers. (Customer Focused)

2. HHS is performance-driven, measuring success in terms of mission execution and continuous improvement towards meeting HHS Strategic Goals and Objectives. (Performance)

3. The HHS EA reflects a standards-based approach that promotes and facilitates technology standardization and reuse, interoperability, data sharing, and overall Departmental efficiency and effectiveness. (Standards)

4. HHS is citizen-centered and business-driven, with services defined and delivered based on the needs of their consumers. (Customer Focused)

5. HHS manages information and data as enterprise assets, ensuring integrity, confidentiality, and availability, at all levels of the department. (Information Assets)

6. HHS requires security and privacy practices to protect information assets from unauthorized use, disclosure, disruption, modification, or destruction. (Security/Privacy)

7. HHS integrates the planning, management, and governance of all HHS OPDIV enterprise architectures into a unified EA that is aligned with the Federal Enterprise Architecture (FEA). (Federated Architecture)

8. HHS streamlines business processes in alignment with Departmental and government-wide initiatives. (Efficiency)

9. HHS evaluates investments against business requirements and service needs, with a philosophy of first Reuse, then Buy, then Build. (Reuse)

3 Major HHS Initiatives

3.1 Transition Priorities

This section describes current and planned activities corresponding to several ongoing initiatives at HHS. The table below summarizes the current status of each initiative and highlights major progress milestones for 2009.

Table 4: Transition Planning for HHS Initiatives

Initiative	Current Status	Milestones		
		2009	**2010**	**2011**
Recovery Act	Program Implementation Plans published	Execute program implementation plans; meet reporting requirements for Recovery.gov	Execute program implementation plans; meet reporting requirements for Recovery.gov	Transition ARRA impacted programs off of Recovery Act funding
IRM Priorities	IRM priorities discussed at HHS-wide strategic planning session in October 2008	Complete segment architecture iterations for all high-priority segments	Re-assess priorities in light of Recovery Act and adjust investments accordingly; revise IRM Strategic Plan	Execute strategic plan; initiate major initiatives corresponding to IRM priorities
Performance Measurement Tool	Program Performance Tracking System (PPTS) put into production in January 2009; performance measures being populated for all programs	Capture performance milestones for all HHS program	Integrate performance measures from IT investment portfolio and other sources to PPTS to provide a consolidated view of performance measures and results	Expand performance reporting capabilities beyond strategic alignment; incorporate performance measurements in governance processes
IT Infrastructure	IT Infrastructure consolidated Ex. 300 reflects all OPDIVs; key security and network initiatives (TIC, IPv6, FDCC, Networx) incorporated in ITI	Produce consolidated Ex. 300 incorporating relevant initiatives	Execute consolidation of internet connections under TIC; implement IPv6-enabled network services	Incorporate new services and IT infrastructure provisioning models as appropriate, including cloud computing
Business Intelligence Solution	Integrated platform aggregates data from EA, CPIC, and Security primary systems	Continue report development; evaluate additional data sources	Expand data sources to performance measures; increase use of analytics capabilities	Implement service offering for stakeholder-requested report creation and development

Initiative	Current Status	Milestones		
		2009	**2010**	**2011**
Security	Maintaining core Department level security services including incident response; HHS CSIRC operational; began using ISS LoB SCC for Training	Conduct security architecture analysis for OPDIVs; evaluate FISMA reporting tool alternatives including SSC	Enhance enterprise security awareness leveraging operational capabilities and information gathered through the HHS CSIRC	Better integrate information security and physical security, and align both with budgetary planning process
HHSIdentity	Contract awarded for solution implementation after successful pilot	Continue phased roll-out of federated identity management, enrolling OPDIVs	Integrate physical and logical security including HSPD-12; evaluate other related functional areas such as HR for dependencies	Evaluate opportunities to leverage cross-agency identity management capabilities
Enterprise Data Management		Evaluating potential creation of health domain within NIEM	Standardize information exchange requirements from health IT specifications	Promulgate data standards, including EHR as mandated in Recovery Act
Enterprise Performance Life Cycle	HHS CPIC EPLC Policy published and in effect	Newly initiated IT projects to follow EPLC	Revise/refine EPLC to reflect changes in Ex. 300	Standardize process and roles for stage gate reviews for all projects
Health IT	Successfully completed NHIN Trial Implementations; NHIN Connect released as open source	Move HIEs into production with NHIN; publish health IT standards as required in the Recovery Act	Incorporate health IT standards, data formats, and services in EHR standard produced by the government	Enforce use of health IT standards for external and internal information exchanges

3.1.1 Recovery Act

HHS Recovery Act activities increase access to health care, protect those in greatest need, create jobs, expand educational opportunities, lay the groundwork for successful Health Reform, and provide immediate relief to states and local communities. HHS has been entrusted with carefully investing $167 billion of taxpayer's funds for these purposes, and is committed to making every dollar count.

HHS is moving quickly and carefully to award Recovery Act funds in an open and transparent manner that will achieve the objectives of each Recovery Act program. A Recovery Act Implementation Team, comprised of the heads of the Department's Operating Divisions and Staff Divisions, meets on a regular basis to review specific program plans and Recovery Act policies being implemented in HHS.

To coordinate and manage the complexity of HHS' role in the Recovery Act, HHS established an Office of Recovery Act Coordination. This Office will ensure that HHS fully implements the Act's requirements and OMB's guidance. This includes ensuring that programs are designed to best meet the Recovery Act's objectives, reporting due dates are met, performance outcomes are established and tracked, risks of fraud and abuse are mitigated, and the public is kept informed through the Web and other means of communication.

- HHS Recovery Act activities touch the lives of Americans, lay a solid foundation for Health Reform, and make a down payment on the President's "Zero to Five" plan of early care and education of children by:

- Promoting access to health insurance and increasing the number of health care professionals through additional grants to healthcare workforce training institutions;

- Computerizing Americans' health records, which will improve the quality of health care, reduce medical errors, and prevent unnecessary health care spending;

- Advancing scientific and biomedical research and development related to health and human services;

- Promoting economic and social well-being of individuals, families, and communities;

- Strengthening necessary healthcare services for medically underserved individuals and as part of the unique relationship between Tribes and the Federal government, providing healthcare services to American Indians and Alaska Natives;

- Providing information on the relative strengths and weaknesses of various medical interventions, so clinicians and patients have valid information to make decisions, which will improve the performance of the health care system;

- Expanding access to vaccines and vaccination services, preventing healthcare associated infections, and promoting prevention of disease through a large-scale community-oriented prevention intervention using proven techniques to reduce rates of chronic disease;

- Ensuring that all Recovery Act funds achieve the goals of the Act and the specific programmatic goals by designing Recovery Act programs so risks of fraud and abuse are mitigated up-front, and then reporting, auditing, and investigating for fraud and abuse once programs are underway; and protecting the confidentiality and integrity of HHS data systems.

HHS has organized the programs affected by Recovery Act funding and initiatives into eight major programs categories or topics, each of which has one or more program implementation plans detailing goals and objectives, milestones, performance measures, and anticipated activities; the plans are available at http://www.hhs.gov/recovery, and are incorporated herein by reference. These implementation plans, published in May 2009, emphasize actions and initiatives to be undertaken during fiscal 2009 and 2010, and therefore are central to HHS transitional activities. The recovery programs include activities in:

- Improving & Preserving Health Care ($90.4 Billion) – A major portion of Recovery Funding will support the improvement and preservation of quality health care programs. These programs include temporary increase in Medicaid, assistance to hospitals, and Tribal protections.

- Community Health Care Services ($2.8 Billion) – Support for the renovation and improvement of community health centers and other programs that serve patients in communities across the country; as well as, Medicaid relief for the nation's most vulnerable families.

- Prevention and Wellness ($1.0 Billion) – Recovery Act funding will be used to carry out evidence-based clinical and community-based prevention and wellness strategies that deliver specific, measurable health outcomes that address chronic disease rates.

- Health Information Technology (IT) ($48.8 Billion) – Recovery funding has been designated to modernize the health care system by promoting and expanding the adoption of health information technology by 2014. Achieving this goal will reduce health costs for the federal government by over $12 billion over the next 10 years.

- Children and Community Support Services ($12.4 Billion) – Critical funding for programs such as community services infrastructure, adoption and foster care assistance, meals for the elderly and persons with disabilities, Head Start, and subsidized child care to support children and families through the lifecycle.

- Comparative Effectiveness Research ($1.1 Billion) – Comparative effectiveness research (CER) compares treatments and strategies to improve health. This information is essential for clinicians and patients to decide on the best treatment. Funding is provided for research activities and the Federal Coordinating Council for Comparative Effectiveness Research.

- Scientific Research and Facilities ($10.0 Billion) – Support for the construction of new research and educational facilities as well as groundbreaking scientific research that will improve the health of the nation.

- Accountability & Information Technology Security ($0.1 Billion) – The Office of the Inspector General (OIG) will assess whether HHS is using the $135 billion in Recovery Act funds in accordance with legal and administrative requirements and is meeting the accountability objectives defined by the Office of Management and Budget. Investigative, coordination, and audit activities will be implemented to ensure that funds are spent wisely and appropriately.

The Recovery Act also influences segment prioritization, particularly for those segments determined to be impacted by Recovery Act funding or initiatives. HHS segments with a potential Recovery Act impact include the following:

- Facility Management
- Grants Management

- Public Health Practice
- Public Health Laboratory Science and

- Health Promotion
- Information Sharing Environment
- IT Infrastructure
- Inspections and Auditing
- Program Management and Support

- Services
- Research Management
- Research Operations
- Social Services
- Workforce Management

3.1.2 Information Resources Management Priorities

At a full-day off-site Strategic Planning session on October 24, 2008, the HHS OCIO and OPDIV and STAFFDIV CIOs, Capital Planning Officers, and other representatives met to discuss current IT priorities. Building on the priorities and areas of emphasis in the most IRM Strategic Plan, stakeholders representing the Department, OS, and several OPDIVs identified projects and potential investments considered critical to their business areas and respective missions that should be addressed collectively (i.e., from a Department-wide perspective). These projects/investments are listed in Table 5.

Table 5: IRM Key Projects and Investments

IRM Projects/Investments that should be addressed collectively
• Improving security posture of HHS.
• HSPD 12 is an example project (Identity Management) can this board have influence over shaping
• ID management, Single Sign On
• Section 508 Compliance Solution
• Financial Systems (UFMS)
• Office of National Coordinator/NHIN and FHA
• IT Infrastructure
• Email (including the selection of the new vendor)
• EPLC implementation in training and processes (investment and future operating principal)
• Trusted Internet Connection
• Federated ID Management (including Bridge to External Parties)
• Enterprise ID Management
• Inventory of all Enterprise Investments and review of their funding strategy/sources
• ITI LOB
• People management (consolidating all functions – administrative functions).
• Service Oriented Architecture
• Emergency communication and resilience
• Usability Test as part of acceptance criteria. User interface should be intuitive.
• Hosting and continuing operations

• Electronic Records Management
• EA and Acquisitions – Faster Acquisition processes
• Enterprise licenses and BPAs
• Integrated Product selection process that involves OPDIVs
• Social computing Web 2.0
• Remote access and Mobile computing
• Cloud computing

The following IRM priority areas have been identified. It is understood that these prioritized areas could change due to changes in HHS mission and vision, priorities, or emerging situations. This list of IRM priorities will be validated and updated in the next iteration of the Transition Strategy.

- Enterprise information security

- Identity and access management

- IT Governance

- Health Information Technology

- IRM consolidation and shared infrastructure

- IRM infrastructure and common services to support public health emergencies (e.g., Swine Flu pandemic, natural and man-made disasters)

3.1.3 Performance Measurement and Management

During the past year, the HHS Office of the Budget first conducted a product evaluation and then selected and implemented a commercial off the shelf tool, the HHS system using this tool is the Program Performance Tracking System (PPTS). The PPTS is intended to capture all program performance measures associated with individual HHS programs, and to allow program spending to be allocated among performance measures. This information informs the budget process and also supports the production of Departmental reporting requirements such as the Performance Accountability Report and the annual Performance Budget. The Office of Budget and the Office of the Chief Information Officer are collaborating to improve the degree to which IT investments are accurately aligned to HHS programs, and to associate IT investment performance measures with the appropriate program performance objectives and measures.

Separately, and with a focus on performance within an IRM context, HHS initiated the development of an enterprise performance management approach and the tools to support consistent performance measurement and performance-based management of investments and initiatives across HHS. The HHS performance architecture is the instantiation of the performance management framework within the HHS EA Repository. Individual initiatives and projects – independently or in the context of an EA segment – will determine appropriate performance measures following the guidance provided in the performance management framework, and will

select performance indicators and target metrics that, if met, will effectively demonstrate success. The performance indicators selected for each program or project will be populated in the HHS EA Repository and aligned to the HHS performance management framework, and by extension to the FEA Performance Reference Model (PRM), allowing HHS to identify and report on which activities across the department are intended to support specific goals and objectives, such as those in the HHS Strategic Plan, cross-agency initiatives, and the President's Management Agenda.

3.1.4 OCIO Business Intelligence and Reporting

In 2007 HHS began an initiative to specify and provide consistent enterprise data aggregation, reporting, and analytics across multiple systems supporting programs within the Office of the Chief Information Officer. This initial work resulted in the formulation of a business case and recommended product selection and implementation for a Business Intelligence solution. This BI solution is intended to maximize the investments made in the current systems by providing an integrated view of enterprise data with the goal of providing consistent, up-to-date and reliable data to end users to enable effective business decision-making support. BI solution offerings provide a way to automate consolidation, analysis, presentation, reporting, and compliance capabilities necessary to make enterprise data available for action and insight. This improves data and information access and delivery as well as reporting and analysis capabilities at HHS. The long range direction and strategic objective of this initiative is to facilitate access to data and information to inform decisions made within the HHS OCIO.

The business intelligence platform went into production in April 2008. To date, the system has been used to aggregate data from systems of record supporting the HHS CPIC and Secure One programs, and has been considered for use for other reporting purposes for additional programs within OCIO.

3.1.5 IT Infrastructure

Former Department of Health & Human Services (HHS) Secretary Tommy Thompson recognized the need for consolidating the IT infrastructure within HHS to achieve his vision of "OneHHS". After consultation with the Office of Management and Budget (OMB) the HHS Secretary directed the OPDIVs to consolidate IT infrastructure operations. The small OPDIVs joined together to consolidate their IT infrastructure operations into the IT Service Center.

The IT Infrastructure Consolidation initiative supported the operation of the HHS Common IT Infrastructure described in the HHS IT Strategic Plan. In accordance with the former President's Management Agenda, HHS consolidated its IT infrastructure services by reducing service sites and consolidating services within its five largest operating divisions OPDIVs and among its smaller OPDIVs. In consolidating various infrastructures into fewer, more standardized units, HHS ensured that all OPDIVs meet their unique business objectives while achieving compatibility, interoperability, and open communication and eliminating unnecessary duplication of functions and infrastructure.

For the 2010 proposed budget year, a new consolidated IT Infrastructure investment has replaced the following existing HHS IT Infrastructure Investments:

- CDC Information Technology Infrastructure – Unique Project Identifier (UPI) 009-20-02-00-01-1152-00
- CMS IT Infrastructure – UPI: 009-38-02-00-01-1150-00
- FDA Consolidated Infrastructure – UPI: 009-10-02-00-01-7031-00
- IHS Infrastructure, Office Automation, & Telecommunications (I/OA/T) – UPI: 009-17-02-00-01-1010-00
- NIH IT Infrastructure – UPI: 009-25-02-00-01-3109-00
- OS ASAM IT Service Center – UPI: 009-90-02-00-01-0001-00

Also in support of the American Recovery and Reinvestment Act (ARRA) the following supporting investments have been added;

- OS ASAM FOH Infrastructure and Office Automation – ITI Contributing – UPI: 009-90-02-00-02-3322-00
- HHS IPv6 Implementation – ITI Contributing – UPI: 009-00-02-00-02-0035-00
- HHS IT Security Projects (ARRA) – ITI Contributing – UPI: 009-00-02-00-02-0033-00
- HHS Networx Transition – ITI Contributing – UPI: 009-90-02-00-02-0032-00
- HHS Trusted Internet Connection – ITI Contributing – UPI: 009-00-02-00-02-0034-00

a) TIC

In response to OMB M-08-05, HHS will adopt a common solution for all external connections under the Trusted Internet Connection (TIC) initiative. This affects more than just the Internet. The TIC initiative covers all connectivity to Federal networks, including those involving contractors, partners, state and local governments, and educational, health and research institutions. TIC will support security for the overall network environment. During the process of finalizing the TIC initiatives HHS has analyzed all OPDIV connectivity and performed a series of optimization tasks that increased business efficiencies through circuit optimization while substantially improving agency communication.
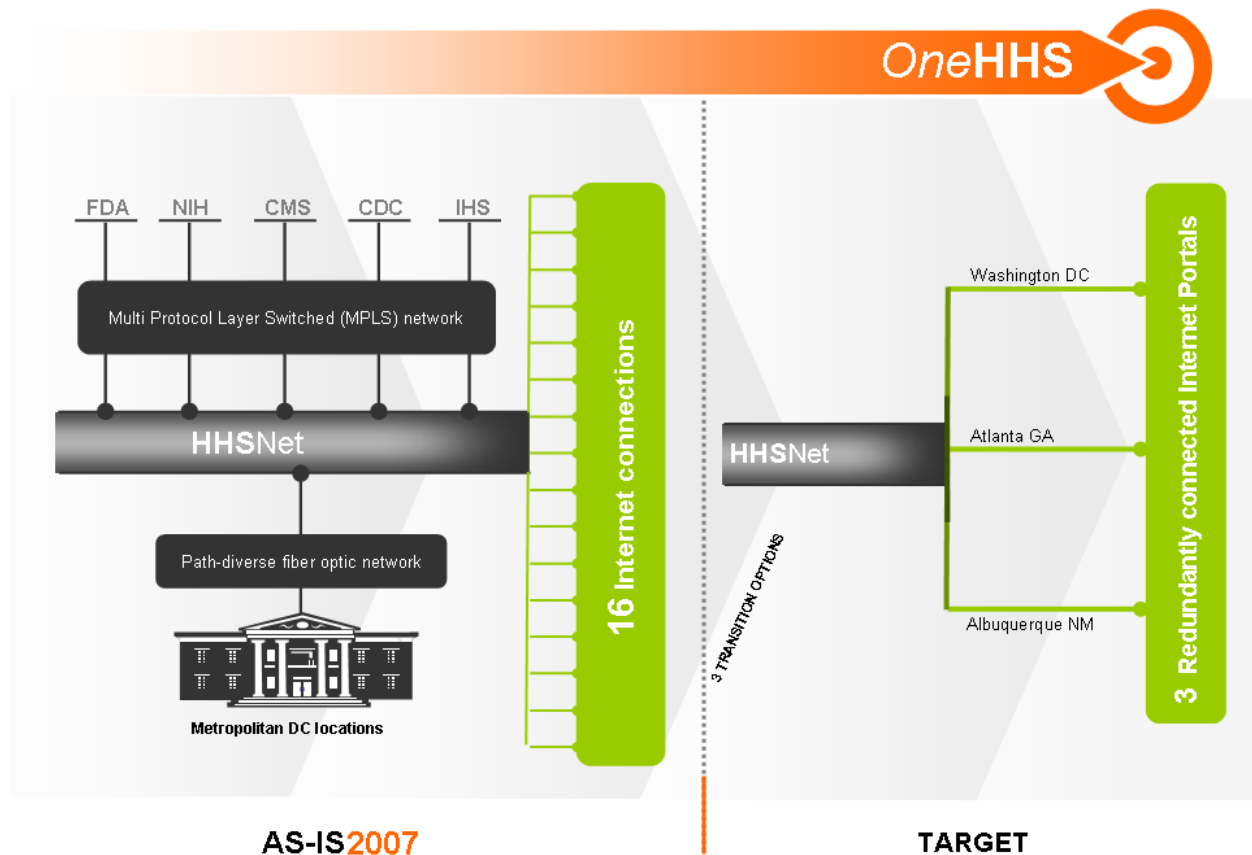
Figure 4: HHS TIC Transformation

Prior to the issuance of the OMB Memorandum for the Heads of Executive Departments and Agencies (M-08-05), HHS had substantially completed Internet consolidation. With the recent increase in security activity and the desire to further centralize points of management control, HHS will further reduce the number of Internet connections from 16 standalone connections to three, redundantly connected TICs with appropriate bandwidth and diversity to meet the collective HHS missions.

b) IPv6

The IPv6 initiative enables HHS to position itself to take advantage of IPv6 technical benefits: increased address space, simplified mobility, reduced network administration costs, improved overall network efficiency, multicasting capability, and improved quality of service (QoS) capabilities. Additionally this transformation from IPv4 to IPv6 offers the opportunity for HHS, and the Federal government at large, to play a leadership role and act as a catalyst to spur innovation within the private sectors. HHS completed the transition to IPv6 as mandated by OMB M-05-22 on June 30, 2008. HHS has completed the following activities and milestones with formal deliverables to OMB:

- IPv6 Transition Plan v1.1– Feb. 2007
- Business Impact Analysis – June 2006
- Requirements Analysis – Dec. 2006

- Target Architecture – Feb. 2007
- Test Planning – Nov. 2007
- Training Plan – Feb. 2008
- Testing – Feb. 2008
- Deployment and Implementation – June 2008

In Feb. 2008, HHS established a IPv6 Testing Lab to test the proposed IPv6 connection between HHS and NIH by transmitting IPv6 traffic in a lab environment. A Test Plan was also developed to simulate current HHSnet to NIHnet connection environment. Configure two switches and two routers to simulate HHH-HHSNET-CORE and NIH-B12-OPDIV routers and internal local LAN switches. Configure two dell D630 laptops running windows XP. Following the above testing HHS tested dynamic routing protocols, DNS, redundancy and upper layer functionality separately. This testing lab will be used to analyze IP address allocation requirements under IPv6 address provisioning. HHS is currently evaluating address provisioning and management tools under the direction of the IPv6 workgroup, with the intention of acquiring and deploying a tool to support this needed capability during fiscal 2010.

Additionally, the IPv6 workgroup is also actively engaged in conducting market surveys and managing tool vendor webcasts and demos. Enterprise architecture plays an active role in the IPv6 implementation participating in the biweekly IPv6 status meetings. HHS also plans to leverage the new Networx contract to ensure that telecommunications services procured by HHS include support for the full range of IPv6-enabled network services required. HHS has performed vendor selection under Networx and late 2008 Verizon was selected as the vendor of choice. HHS will utilize the Networx contract for all current services now obtained under FTS2001 and the Trusted Internet Connectivity Initiative (now under development as described below). Orders for services under Networx are currently underway with full migration of services completing in the May to August 2010 timeframe.

In order to continue planning for the full implementation of IPv6 and referring the recently published "Planning Guide/Roadmap toward IPv6 Adoption within the U.S. Government", HHS has established the following activities and milestones;

- Collect and Assemble related enterprise inventory and network diagrams – (Target July 2009)

- Draft Address Allocation Plan – (Target Sept. 2009 but contingent on the TIC group finalizing their design)

- Address Management System to be Piloted over the summer 2009 – (Target of procurement 2nd quarter FY10 and implement 3rd quarter FY10 contingent on availability of funding)

- Develop draft IPV6 Implementation Plan – (Target Sept. 2009)

- Prepare and Present plan to HHS CIO council for approval – (Target Oct. 2009)

c)   Key Investments

The provision of IPv6-enabled network services is a core element of the new HHS Consolidated IT Infrastructure investment, which under the IT Infrastructure program has replaced six

formerly separate infrastructure investments at the large OPDIV and OS levels. Ongoing projects and initiatives involving IPv6-enabled network services and applications include:

- Remote facility telecommunications links used by Indian Health Services (IHS) to improve communication and network capabilities among hospitals and other tribal area facilities. The evaluation, testing, and planning for deployment of network capacity and services to support telemedicine remains a priority for IHS. IHS has performed design and lab testing activities, and has issued IP addresses for purposes of additional service testing and pilot deployments. The Navajo Area has upgraded its routers for IPv6 compliance and can run both IPv6 and IPv4 dual stacks at the same time. A LAN replacement project completed at Ft. Defiance hospital is also IPv6 compliant, making Ft. Defiance a good candidate to be an IHS IPv6 pilot location.

- The Office of the National Health Coordinator for Health IT has acknowledged the need for data transmissions related to health information exchange to be transmittable using both IPv4 and IPv6 protocols. Technical gaps identified for extension among the existing set of health IT standards and technologies include message routing interoperability service specifications, one of many components of establishing a national health information network capability, a requirement re-emphasized in the Health Information Technology for Economic and Clinical Health (HITECH) Act contained within the Recovery Act.

- The National Institutes of Health publicly recognized the potential for several new technical enabling services, highlighted in its Scaleable Information Infrastructure Awards. A collaboration with the Pittsburgh Supercomputing Center and the Duke University Center for In Vivo Microscopy is researching and designing infrastructure services to support visualization, analysis, storage, and manipulation of time-varying 3D datasets. The new application requires fast, real-time uploads of captured data and secured interactive access by geographically distributed users. The project is evaluating the use of several IPv6 protocol features, including IPSec, to meet these needs.

- A new investment enabled by the Recovery Act (UPI: 009-00-02-00-02-0035-00) will fund accelerated implementation of IPv6 network services, intended to increase service levels and decrease costs to be realized through the completion of infrastructure optimization activities.

3.1.6 Security

Data security and privacy protection are high priorities for HHS and all government agencies. The Department's strategy for improving protection of data assets addresses OMB requirements protecting information and information system resources from unauthorized access, intrusion, or other incidents, and especially to provide proper security and privacy protections for personally identifiable information and other sensitive data stored within HHS. Congress recognized the need for heightened attention to information technology security, appropriating $50 million to improve IT security at HHS within the provisions of the Recovery Act. In parallel with greater emphasis placed on security, security-relevant initiatives are also being consolidated into broader

IT and business programs. These include the Trusted Internet Connection (TIC) and Federal Desktop Core Configuration (FDCC), both of which fall within the scope of IT Infrastructure.

Department-level initiatives under Secure One HHS will seek to leverage externally mandated government security initiatives and requirements to enable more consistent and effective security controls across HHS. For example, as part of the OMB-mandated transition to Internet Protocol version 6 (IPv6) within government IRM infrastructure, the IP Security (IPSec) capability of the IPv6 protocol will become available for use to promote data confidentiality and integrity. The detailed network infrastructure analysis required to comply with IPv6 implementation milestones has provided information to HHS that will support improvements in network security. For example, integrity and confidentiality of data will be supported by instituting node authentication – possibly using network access control (NAC) – and greater degrees of internal network segmentation to effectively restrict access except to known devices. Starting with devices handling high sensitivity data as well as all servers, node authentication will ultimately be instituted throughout the remainder of the network. In addition, many of the technical measures to be implemented to support physical security and personal identity verification in compliance with HSPD-12 and FIPS 201 offer the potential for use to support better logical access and other information security measures. Core supporting services for HSPD-12, such as a public key infrastructure (PKI) enable strong authentication, digital signatures, and standardized identity management, authentication and authorization services. Successful management of these encryption capabilities will entail the development of policies and mechanisms for cryptographic key management and key recovery.

The significant number of security-related activities and mandates were contributing factors in the decision to prioritize information security as a segment architecture for development, and for continued iterations and revisions to the segment architecture to reflect increasing areas of emphasis on information security, both with HHS and driven from the current administration. The Secure One HHS program is also evaluating the security services provided and made available by other agencies through the Information Systems Security LOB; at the current time HHS has submitted a request for waiver in order to continue using existing FISMA tracking and reporting capabilities already in place, pending a more complete evaluation of alternatives. HHS has begun using the Information Systems Security LOB shared service center for security training. HHS also received a Recovery Act funding allocation of $50 million through the Public Health and Social Services Emergency Fund to improve information technology security. The recovery plan for these funds includes the following initiatives, all of which are planned during fiscal years 2009 and 2010:

- **Security Incident Response & Coordination:** Funds will be used to significantly expand the capabilities of the recently established HHS Computer Security Incident Response Center (CSIRC), which is co-located with the CDC Security Operations Center in Atlanta. The CSIRC will expand to support 24 X 7 operations that will coordinate all Department and OPDIV actions to monitor, detect, react, and mitigate (or prevent) attacks against HHS and OPDIV systems. This will include the centralized reporting of security incidents to the U.S. Computer Emergency Response Team (CERT), which is operated by DHS. Nominal start-up activities were initiated for the CSIRC in September 2008, and included funding for one government FTE at the CDC in Atlanta, Georgia to manage the HHS CSIRC.

- **OPDIV Security Engineering and Technical Staff Support:** One of the highest priority requirements identified by each of the OPDIVs was the need for additional security technical staffing support. Funds will help alleviate the current security workload backlog of OPDIV security staffs. The backlog is identified in the remediation work associated with the Federal Information Security Management Act (FISMA) Plan of Action and Milestones (POAMs) that are in place at each of the OPDIVs. HHS has also been challenged to keep up with the weekly assignments and tasks generated by the US Computer Emergency Readiness Team (CERT). OPDIV reviews of security audit logs from firewalls, IDS systems, operating system logs, etc…require improvements. Automated tools can assist, but ultimately security technical staff must make a final determination for each of the alarms generated from system audit log data. The funding will assist each OPDIV in being able to respond in a more timely manner to US CERT tasks, and also begin more timely reviews of system audit logs, and reduce the POAM backlog.

- **Enterprise-wide Security Situational Awareness:** Funds will provide enhanced Department-wide computer systems intrusion detection capabilities, security information event management systems, and network forensics capabilities. This includes capabilities to collect and analyze the large set of security audit log data that is collected by HHS computer systems.

- **Endpoint (Desktop Computer) Protection, Internet Content Web Security Filtering, and Data Loss Prevention:** Federal government computers are being compromised by malicious software (malware) and other computer viruses and worms that are introduced into government computing environments when users unknowingly visit infected web sites. The malware takes advantage of any weak security controls that may be implemented in government computer systems. Funds will provide all OPDIVs with a number of advanced security tools to strengthen end user computer defense mechanisms against malware attacks, and also prevent sensitive data from being extracted from the Department's computer systems and databases.

- **Enhanced OPDIV Security Architecture, Engineering and Implementation:** Utilizing an HHS contract managed by the Department CISO, this initiative develops or updates OPDIV plans for securely architecting our computing environments into secure enclaves. Provides a number of security solutions specifically for OS and IHS, enhancing the protection of sensitive data, and also provides for secure remote access, firewall upgrades, multi-factor authentication, network access control, and enhanced security of the domain name system (DNS).

3.1.7 HHS Identity

The HHSIdentity initiative, currently in roll-out and managed under the Office of the Chief Technology Officer, will integrate and implement key identity management and E-Authentication services across the Department in compliance with HSPD-12 and FIPS 201. The services planned for enterprise deployment will leverage and, to the extent possible, reuse existing capabilities already in place among large HHS Operating Divisions such as NIH. These common security, identification, and authentication services will be integrated across the

enterprise in support of enterprise initiatives such as Enterprise e-Mail, and will be leveraged by a variety of HHS systems and applications for authentication. This initiative will include the integration and implementation of key identified services including single sign-on, enterprise directory services, public key infrastructure, and, potentially, biometrics services to meet defined operational objectives and functional requirements. Business requirements identified for the HHSIdentity program include the following:

- Conduct identity proofing, with process automation supporting level 4 credentials

- Provide an authentication service enabling the use of the HSPD-12 compliance PIV card for logical access to applications

- Establish a unique identifier for HHS staff for both physical and logical access

- Develop an automated credential life cycle management capability, particularly including the ability to revoke all credentials assigned to a given user

- Develop automated interfaces to OPDIV people management systems

- Develop a central repository of identity attributes for all HHS personnel, including contractors

The three primary activities of the HHSIdentity program include credential, identity, and access management. While the initial focus of the program was logical access, significant overlap exists between physical security program activities under HSPD-12 and HHSIdentity, in terms of business processes, procedures, and technical solutions. For this and other programmatic reasons, HHS will transition both programs toward a single integrated identity and access management program. This approach will help HHS ensure that identity and access management capabilities deployed across HHS satisfy the full set of relevant business requirements to support HSPD-12 compliance and physical access needs as well as logical access and related personal identity verification activities. In addition, the HHSIdentity program activities are likely to involve upstream and/or downstream dependencies on other programs and business areas, particularly including information security, IT infrastructure, and human resources.

3.1.8 Enterprise Data Management

HHS continues to oversee a Data Architecture Work Group (DAWG) under the Enterprise Architecture Review Board. The DAWG members represent the data architecture interests of all HHS Operating Divisions and the Department. Among the tasks assigned to the DAWG are the development and implementation of plans, processes, and activities to establish an enterprise data management program at HHS.

HHS is involved in a number of information sharing and data exchange standards activities relevant to enterprise data management. The Federal Health Information Sharing Environment (FHISE) project within the Federal Health Architecture (FHA) program identified a need for consistently defined information exchange requirements to enable the implementation of Interoperability Specifications developed to address specific health IT use cases. HHS has begun to evaluate formally specifying relevant health IT information exchanges within a health domain

of the National Information Exchange Model (NIEM). FHISE and other information exchange specification work across HHS have suggested the value of and a possible need for the declaration of a health and human services domain within NIEM.

The Federal Office of Child Support Enforcement (OCSE) within the Administration for Children and Families last fall announced the endorsement of the Child Support and Court/Judicial Message Exchange Data Model by the Data Standards Oversight Board (DSOB). This endorsement provides data standards for the Child Support community to facilitate an automated data exchange with the courts/judiciary. Automating the data exchange will result in consistent data which will speed up the execution of child support orders allowing more time to increase the services to families. The endorsement of this model by the Conference of Chief Justices within the National Center for State Courts was final on October 31, 2008. The new data standards were developed through integration of the National Information Exchange Model (NIEM) and child support enforcement (CSE) standards. NIEM is a culmination of the Global Justice XML Data Model (GJXDM) and Legal XML, which were pioneer efforts at an exchange model. It is also a continuation of the work started in 2003 to automate the exchange of court data; NIEM is consistent with these earlier standards. As States start to think about moving beyond the filing aspect, OCSE is evaluating recommendations to use this exchange model for future data exchanges, such as responses from the courts.

3.1.9 Enterprise Performance Life Cycle

The HHS Office of Enterprise Architecture continues to support the implementation and evolution of a performance-based life cycle (managed under the CPIC Program Office) defining 10 common phases from initiation through disposition. The Enterprise Performance Life Cycle (EPLC) integrates data collection and information reporting requirements across Capital Planning and Investment Control, Enterprise Architecture, Information Security, and Project Management functions. It defines exit criteria and a stage gate review process at the end of each phase of the life cycle to provide a framework in which individual projects supporting IT investments can be monitored and managed in a more consistent manner. Following the initial development of the EPLC, the implementation and oversight of the processes became the responsibility of the HHS CPIC Program.

The HHS OCIO Policy for Information Technology Enterprise Performance Life Cycle was approved and formally issued in October 2008. New IT projects at the Departmental and Operating Division and Staff Division levels will follow the EPLC. The upcoming milestones for the EPLC include the continued collaboration of HHS, OPDIV, and STAFFDIV program and project management to maintain appropriate governance for and adherence to the EPLC, training for project managers on the EPLC, and broader-scale implementation of the process through inclusion of the EPLC requirement in OPDIV and STAFFDIV contract language. The further development, enhancement, and implementation of the EPLC is also being addressed in the context of the Capital Planning and Investment Control segment, the development of which is currently in progress.

3.1.10 Health Information Technology

The Health Information Technology for Economic and Clinical Health (HITECH) Act provisions of the Recovery Act of 2009 create a historic opportunity to improve the health of Americans and the performance of the nation's health system through an unprecedented investment in health information technology (HIT). This initiative will be an important part of health reform as health professionals and health care institutions, both public and private, will be enabled to harness the full potential of digital technology to prevent and treat illnesses and to improve health. The provisions and mandates in the HITECH Act will serve to re-focus and accelerate some of the activities already underway within the Office of the National Coordinator (ONC). Key activities planned for execution during this and the following fiscal year include:

Privacy and Security Spend Plan: Recovery Act Subtitle D - Utilizing fully competitive contract awards, HHS will implement time-sensitive, mandatory regulatory and enforcement requirements in Subtitle D, providing contract assistance to meet statutory deadlines requiring promulgation of a variety of regulations and guidance, conduct multiple studies, and submit a number of Congressional reports; enhance enforcement of the Health Insurance Portability and Accountability Act *(*HIPAA*)* Privacy and Security Rules by carrying out the extensive changes that Subtitle D makes to the existing HIPAA complaint investigation and enforcement scheme. This funding will enable the Centers for Medicare and Medicaid Services (CMS) and the Office for Civil Rights (OCR) to carry out mandated audits, make modifications in their case and document management systems, and train State Attorneys General in their new enforcement role. The Recovery Act also required that, no later than April 17, 2009, ONC was to issue guidance on technologies and methodologies that render protected health information unusable, unreadable, or indecipherable to unauthorized individuals. This guidance was published in the Federal Register.

Standards Rulemaking: Recovery Act §3004 (B) (1) - No later than December 31, 2009, HHS shall adopt and publish an initial set of standards, implementation specifications, and certification criteria. In December 2007, working within a collaborative environment with the American Health Information Community (AHIC) and the Health Information Technology Standards Panel (HITSP), the HHS Secretary recognized a series of standards released for implementation corresponding to an initial set of healthcare use cases. The requirements in the Recovery Act supercede the standards recommendation and recognition process followed in prior years, shortening the review and consideration period for recommended standards in recognition of the fact that health IT adoption objectives, incentives, and penalties specified elsewhere in the Act cannot be realized without a common set of agreed-upon standards.

Considerations to Address Moving Forward - There are a number of complex issues that must be considered to fully implement the requirements of the HITECH Act and the intent of the Recovery Act. There is foundational work required to support the large investment that will be made through the Medicare and Medicaid Incentives programs at the Centers for Medicare & Medicaid Services (CMS). With the arrival of the new National Coordinator, decisions about how to best address standards development and harmonization, the certification and testing processes, privacy and security policy development, issues around governance, workforce training, and education for health care providers and consumers will be made. The Office of the

National Coordinator released an operational plan in May 2009, and plans to revise and publish an updated strategic plan by the end of calendar 2009.

3.2 Cross-agency Initiatives

All relevant government-wide and health sector initiatives are incorporated in the HHS enterprise architecture, to provide a centralized initiative alignment capability, to identify opportunities for reuse of internally and externally available services, and to help demonstrate compliance with mandatory guidance, regulations, and technical standards.

3.2.1 Federal Transition Framework

The most current version of the FTF Catalog lists 42 initiatives, not all of which are applicable to HHS. The table below summarizes the HHS transition planning perspective for each relevant FTF initiative, characterizing the level of relevance, current status, and expected progress or milestones for 2010. Additional detail on FTF alignment, with an indication of which FTF initiatives apply to each HHS segment, is part of the EA Segment Report prepared and submitted quarterly to OMB via the MAX portal, and available for viewing via the HHS EA Repository. A summary table listing all FTF initiatives and the HHS segments aligned to them appears in Appendix C.

Table 6: Transition Planning for FTF Initiatives

Initiative	HHS Relevance	Current Status	Planned Activities
Budget Formulation and Execution Line of Business	Potential Service Consumer	Interagency agreements and MOU signed and delivered to OMB in 2008	Evaluate potential for reuse of FTF services as they are developed
Business Gateway	Service Consumer	Initial use in HHS interaction with regulated product manufacturers	Evaluate potential use of FTF defined processes and services
Case Management Line of Business	Litigation and Regulatory Enforcement	No enterprise initiative	Evaluate potential use of FTF defined processes and services
Disaster Assistance Improvement Plan	Government-wide program; integrated with GovBenefits.gov	Content on forms of disaster assistance communicated to GovBenefits.gov	No additional activities
Disaster Management	Mission Responsibility under Asst. Secretary for Preparedness and Response	Progress report on PAHPA accomplishments produced in August 2008	Continue to execute plan, with focus on Strategic National Stockpile medical counter-measures and capability coordination consistent with HSPD-21

Initiative	HHS Relevance	Current Status	Planned Activities
E-Authentication	Government-wide mandate	Submitted ramp-up plan for HHS implementation of E-Authentication in 2008	Continue implementing E-Auth service for identified web-based systems
E-Clearance	Background investigations for employees and contractors in support of security clearances	Clearance processes incorporate the use of OPM's e-QIP for background investigation data gathering; 95% compliance for SF-86	Achieve full compliance for all security investigations
Enterprise HR Integration	Service Consumer	Integration completed; HHS began using analytical workforce planning tools in 2008	Maintain integration; produce 5 year agency workforce plan using WASS/CIVFORS/BI environment tools
E-Payroll	Service Consumer	HHS transitioned to DFAS payroll processing in 2005	No additional activities
E-Records Management	Government-wide mandate	Developing Records Management segment	Evaluate service and technology reuse potential
E-Rulemaking	Government-wide mandate	Agency rulemaking systems shut down in favor of E-Rulemaking in 2008	No additional activities
E-Training	Government-wide mandate	All OPDIVs migrated to GoLearn except FDA and CDC	Complete decommissioning of agency learning management systems
E-Travel	Service Consumer	Completed HHS-wide deployment	Begin mission critical travelers deployment
E-Vital	Managing Partner	Delivered Transition Paper reflecting move of this initiative out of the IT arena	No additional activities
Federal Asset Sales	Government-wide mandate	Agency personal property sales systems redundant to initiative solution shut down in 1Q 2009	No additional activities
Federal Health Architecture (FHA)	Managing Partner	Completed NHIN Trial Implementations; released NHIN Connect as open source software	Continue NHIN development (augmented under ARRA); evaluate HHS deployment alternatives for NHIN-Connect

Initiative	HHS Relevance	Current Status	Planned Activities
Financial Management Line of Business	Intent to be a FM COE/ Service Provider (SSP)	Interagency agreements and MOU signed and delivered to GSA in 2008	Increase internal and external use of HHS target financial management services
Geospatial Line of Business	Potential Service Consumer or Provider	Interagency agreements and MOU signed and delivered to GSA in 2008	Evaluate service and technology reuse potential
Geospatial One-Stop	Government-wide mandate	CDC and HRSA leading Health and Human Disease geodata.gov community	Integrate HHS GIS Public Health data to Geospatial One-Stop
GovBenefits.gov	Government-wide program	Process established to enter and maintain all benefit eligibility programs	No additional activity
Grants Management Line of Business	Co-Managing Partner; Intent to be a Service Provider (SSP)	Plan on NIH system consolidation delivered in 2008	Increase internal and external use of HHS target grants management services
Grants.gov	Managing Partner	HHS grant opportunities are currently published on grants.gov; final analysis with exemption mitigation strategies delivered in 2008	Maintain 100% posting of HHS discretionary grants on grants.gov
HSPD-12	Government-wide mandate	Currently issuing cards to employees and contractors as ID expirations occur	Integrate planning with HHSIdentity initiative in order to reuse applicable capabilities
Human Resources Line of Business	Intent to be a HR COE/ Service Provider (SSP)	Interagency agreements and MOU signed and delivered to GSA in 2008	Increase internal and external use of HHS target human resources management services
Information Sharing Environment (ISE)	Member of Information Sharing Council	Developing ISE segment architecture	Contribute to the development of a health information profile for ISE
Information Systems Security (ISS) Line of Business	Potential Service Consumer	Began using ISS LoB training SSC in 2008; conducting cost-benefit analysis for FISMA reporting	Evaluate alternatives for ISS FISMA reporting processes and services

Initiative	HHS Relevance	Current Status	Planned Activities
Integrated Acquisition Environment (IAE)	Government-wide mandate	Completing system rationalization under HHS Consolidated Acquisition System (HCAS), with a single enterprise instance	Increase internal and external use of Strategic Acquisition Services at HHS as, as appropriate, of IAE services
Internet Protocol Version 6 (IPv6)	Government-wide mandate	Achieved June 2008 transition milestone; continuing roll-out	Invest in and deploy IPv6 network and application services as business needs emerge
IT Infrastructure Line of Business	Government-wide mandate	Submitted updated Department 5-year optimization plan; submitted consolidated IT Infrastructure Ex.300	Incorporate related initiatives and requirements from TIC, FDCC, IPv6, and HSPD-12
International Trade Data System (ITDS)	System planned for use by HHS	Program initiated	Integrate processes to fully utility ITDS
National Information Exchange Model	Contributing to health and human services domain data definitions	Initial localized efforts to specify information exchanges under NIEM	Evaluate potential creation of health (and/or human services) domain
Recruitment One-Stop	HHS position posting on USAJOBS	Integration with USAJOBS	No additional activity
SAFECOM	Communications during emergency response	Compliance achieved with common wireless requirements	No additional activity

3.2.2 Health Information Technology

HHS has incorporated all technical standards adopted within the Health IT sector, including those approved through the Health Information Technology Standards Panel (HITSP) and recently formally recognized by the HHS Secretary. All of the individual technical standards specified by these initiatives are reflected in the HHS enterprise architecture and reported in consolidated form in the current version of the HHS Technical Standards Profile.

For Health IT standards, the major transitional activity focuses once again on HHS' role (both through the Office of the National Coordinator and the HHS Secretary) in promulgating an appropriate set of standards to facilitate health IT adoption. While HHS and its Operating Divisions continue to plan for and implement health IT standards previously recognized by the Secretary, from a cross-agency perspective the Department is delegated under the HITECH Act a more central governance and leadership role both in terms of determining standards and in terms of establishing the composition of new national health IT governing bodies, including the Health Information Technology Policy Committee and the Health Information Technology Standards Committee. Transition planning for health information technology in this context will be guided by the Health Information Technology American Recovery and Reinvestment Act (Recovery Act) Implementation Plan published by ONC in May 2009. The Office of the National

Coordinator also plans to revise and publish an updated strategic plan by the end of calendar 2009.

3.3 Completed Segments

As noted above in section 2.2, as part of the HHS Enterprise Architecture Program's efforts to support and further progress on high-priority strategic initiatives, over the past year the OEA began and completed segment architecture development efforts for three segments: Information Sharing Environment, IT Infrastructure, and Information Security. In addition, the Indian Health Services EA program took the lead on and completed a first iteration of the Patient Care segment. HHS also has two segments for which architecture development and transition planning was performed prior to the re-emphasis and change in context for the "segment" context in the FEA. This section provides a summary of relevant information produced in each segment architecture development effort, with information drawn from the respective Segment Transition Plans. The raw number of HHS "completed" segments using FEA PMO definitions of "completed" has gone down, due to the re-organization and re-adjustment in scope of essentially all core mission, common business, and enterprise service segments as part of the process of formalizing the complete list of HHS segments during the summer of 2008.

3.3.1 Information Sharing Environment (ISE)

a) Overview

The Department's ability to deliver the best possible service relies not only on HHS' expertise but also on the expertise of other organizations, including Federal agencies, State, Local, and Tribal agencies, non-government organizations, commercial enterprises, etc. Achieving HHS' mission requires unprecedented cooperation; which also requires an unprecedented level of information sharing. Over the years, information sharing environments have grown organically, both within HHS as well as with its partners (e.g. Federal Agencies, State Agencies, non-government entities, etc.). Indeed HHS currently supports information sharing through a variety of services provided by the facilities of the cancer biomedical informatics grid (caBIG™), the Public Health Information Network (PHIN), and others. But HHS is responsible for more than Healthcare, there are after all Human Services as well; they too have information sharing needs and capabilities. Indeed, an enterprise service could share non-mission data as well as management and administrative information.

As an organization HHS has recognized that for several years; and indeed has taken a leadership role in the development of information sharing capabilities. The leadership continues with the HHS / Information Sharing Environment (HHS/ISE) Architecture. The ISE will simplify information sharing by providing a common platform with a standard set of services that will permit OPDIVs, partner agencies (at the Federal, State, Local, and Tribal levels) and commercial enterprises to share information based on common standards and practices. HHS will achieve this by taking following steps:

1. Standardizing the information sharing services provided by existing HHS networks, allowing them to converge to achieve consistent and cost effective information sharing

2. Under the leadership of the Office of the National Coordinator (ONC) for Health Information Technology (HIT), development and nationwide implementation of an interoperable health information technology infrastructure to improve the quality, safety and efficiency of health care and the ability of consumers to manage their health information and health care

3. Extending the information sharing environment to include non-health, non-mission and administrative/management exchange packages and services

4. Mapping of services, information exchange standards and exchange packages contained to the ISE sub-function to achieve visibility and governance.

HHS understands that the organic growth (of information sharing services) over the years created the potential, if not the reality, of overlapping and disjoint services. But without line-of-site into this area, management remained problematic. Finally, with the introduction of the Information Sharing sub-function within the Information and Technology Management LOB, HHS can achieve line-of-sight into this critical area. This is complementary to the Information Sharing Environment (ISE) work by the DOJ and the FHA.

HHS created the Information Sharing Environment (ISE) segment to provide a strong architecture that ensures comprehensive and secure information exchange between HHS and its partners. As this is the first iteration of the ISE Segment; it introduces ISE and begins the discussion with HHS' CIO's and ISE stakeholders. The purpose of the segment is to provide the architectural foundation for information sharing as a cohesive set of services across HHS; to rationalize and harmonize the many current services.

ISE is an infrastructure ("plumbing" if you prefer a colloquial term) segment. It provides the architectural foundation for the systems and services necessary to support information sharing for HHS' OPDIVs (and STAFF DIV's) and partners. Throughout this document, we have drawn heavily on the work of the Federal Health Architecture (FHA) and that of the DOJ Information Sharing Environment Enterprise Architecture Framework. Indeed the newly proposed FHA Framework is following (drawing on) this work; an early example of architectural re-use. While much work has been accomplished in this domain; there remains a lot to be done. By placing all of this work together in a single segment architecture, HHS believes that the convergence will continue, and increase in speed.

While the segment is infrastructure in nature, it is nevertheless founded in business requirements. The Business Use Cases (in progress by the FHA) provide the essential Business Area linkages and priorities. Creating ISE views of existing HHS Systems (archaeology) tells us what currently exists, the business tells us what is needed; segment architectures and the associated transition plans tell us how to move between the two views.

b) Findings and Recommendations

Like many organizations, information sharing has grown organically at HHS. As the need presented itself, capabilities were added to the by the Business Area that required tem. In some cases (e.g. caBIG™, PHIN, etc.) information services took on a life of their own; nevertheless they remained closely aligned with the creating/sponsoring area. HHS now owns and operates a

"network of networks"; however they are not interoperable. Even where common services exist; they have been implemented using different standards and technologies. Many of the findings are a direct result of the structural issues created by the unconstrained organic growth.

Table 7: HHS ISE Segment Findings Summary

No.	Finding	Description
F-1	No Comprehensive Information Sharing Mission	Responsibility for Information sharing environments (ISE's) at HHS is distributed among the OPDIVs within HHS. There is little coordination or sharing among the many initiatives. The ONC and FHA are focused on Health Information; ignoring the needs of the Human Services side of HHS' mission. There is no mission statement covering non-core mission or administrative information sharing
F-2	Information Sharing Inventory not completed	An inventory of HHS ISE's is not available. HHS cannot categorically state how many ISE's exist, nor how much is being spent on information exchange
F-3	Diffuse ISE Goals and Objectives	Responsibility for information sharing is delegated to the OP. The ISE goals and objectives, while similar, do no drive commonality or support re-use. ISE is not a primary objective in the HHS Strategic Plan 2007-2012
F-4	No Non-health Information Sharing Goal	Health information sharing remains, rightly so, a primary focus area for HHS. Non-health related information sharing has the same issues and problems.
F-5	Too Many Stakeholders	The current ISE's stakeholder list is not manageable. It includes <all> Federal Agencies, State Agencies, Local Agencies, Tribal Agencies, Healthcare providers and organizations, etc. It is like this because ISE is mapped to the Core Mission and/or Business Service level in the BRM
F-6	No Common Architectural or Design Deliverables	Each ISE documents their segment at different levels of granularity and use different architectural deliverables. This makes comparing them extremely tedious
F-7	Overlapping and Inconsistent Information Sharing Services	There are well over 100 use cases describing information sharing services in just three (3) documented ISE's. While there are similarities in services; it is difficult to ferret this out. There are no common service definitions among the many ISE's
F-8	ISE Systems Intermingled with other Sub-Functions	The current ISE's are heavily driven by business use cases. As a result, ISE's tend to be either tightly coupled with business services, or the support/development structures are intermingled
F-9	Divergent Technologies	Though the TRM was out of scope during this iteration of the Segment Architecture, it was noted that the various organizations used significantly different technologies to provide the same services. It also appears that all of the technologies adhered to existing Health IT Standards
F-10	Investment Information Not Readily Available	Within the HHS OCIO Exhibit 53 submission there were seven (7) obvious ISE investments. They were mapped to LOB 110 and Sub-Functions 246, 248 and 249
F-11	Standards, Lots of Standards	There are numerous standards describing health information. It is not at all clear that the canonical forms exist outside the context of existing ISE's (i.e. what form will be exchanged between networks is not known)

F-12	Multiple Support Organizations	For each individual ISE there is a support organization staffed with architects, engineers, project managers, testers, trainers, etc. From the FEA CRM, there are seven (7) Business Areas, 20 LOB's and 60 Sub-Functions represented. That is a lot of duplication for a common set of services

As many of the findings were structural in nature; it should come as no surprise that many of the recommendations are designed to solve the structural problems.   Of primary concern is understanding the real scope of information sharing at HHS. Next is to rationalize/harmonize the various service definitions. Only then can HHS begin to address comprehensive implementation planning.

Table 8: HHS ISE Segment Recommendations Summary

No.	Recommendation	Finding(s) Addressed	Description
SR-1	Secondary mapping to Information Sharing Sub-Function 262 under the Information and Technology Management LOB	F-1 F-3 F-4 F-5 F-8 F10	All information sharing activities should be secondarily mapped to Sub-Function 262 to provide the necessary investment visibility and governance foundation. The Stakeholders for Sub-Function 262 will be the CIO's of the participating OPDIVs. This will also allow ISE investments to be tracked.
SR-2	Complete a comprehensive HHS Information Sharing Survey	F-2	HHS organizations need to complete the Health Information Survey and create a separate instrument to assess the Non-Health Information Sharing inventory.
SR-3	Create and Fund an ISE Organization. Establish an ISE Council to provide oversight and governance	F-1 F-3 F-4 F-5 F-12	The ISE must be separated (logically, if not physically) from any specific OP DIV if it is to provide Enterprise Services. All new services should be created by this organization. An ISE Council consisting of the HHS CIO's and a representative of the ONC should be created to provide governance.
SR-4	Architect a comprehensive ISE. Reconcile/harmonize the services and supporting technologies to be offered	F-6 F-7 F-9	Each instance of an information sharing environment should complete a high level Segment Architecture. At the direction of the ISE Council; designated architects/engineers should update this ISE Segment Architecture to reflect the mandatory common service definitions and supporting technologies.
SR-5	Decouple Data Interchange Standards from ISE	F-12	While ISE must be able to effectively transform information as it moves through its infrastructure; ISE is not responsible for establishing the canonical form of the information exchange package. ISE only requires that the canonical form exist with a set of rules for performing the transformation. ISE can specify the technology base to provide the transformation.

c)   Sequencing Plan

At the present time, HHS does not have a comprehensive inventory of Information Sharing Environments. While major environments are somewhat known (e.g. PHIN, caBIG™, etc.), many others are less known. With the exception of PHIN, there are no segment architectures, and the nature of documentation on the various environments is inconsistent making comparison problematic at best. ISE Investments are currently tracked at the sponsoring LOB/Sub-function level; primarily 101/246,248 & 249. At this level it is impossible to identify or manage ISE investments.

Sequencing Priorities – Rationale/Timeframes/Organizational Impact/Risks

With this as a baseline, the HHS ISE Segment Sequencing plan concentrates on the following:

1. **Inventory of existing ISEs** – the current Health Information inventory needs to be completed; further it needs to be expanded to include non-health ISEs, non-mission and administrative information sharing opportunities. Unless HHS can identify all of its ISE's it cannot either measure or manage them effectively.

   Timeframe: Q1 FY10

2. **Architectural models of existing ISEs** – currently, the ISEs are documented with differing methodologies/techniques and at different levels of granularity. This leads to an inability to compare capabilities, services, or systems. This step will create the deliverables that facilitate comparing the various ISE capabilities.

   Timeframe: Q1 FY10

3. **Redesigned target architecture model of the ISE Segment** – once step 3 has been created, it will be possible to determine what the HHS ISE should be when it grows up; this will establish scope from which organizational planning and investment planning can take place.

   Timeframe: Q1 FY10

4. **Strategic Plan for adopting the NIEM at the HHS** – the document will focus on the key business drivers behind the adoption of the NIEM at the Department, key stakeholders, specific recommendations (particularly, with regard to establishing the Health and Human Services domains within the NIEM and developing NIEM-based Information Exchange Package Documentation (IEPD)), as well as the timeline and sequencing of activities.

   Timeframe: Q4 FY09

5. **Information Exchange Package Development Environment (IEP DE) requirements document** – the document will outline business requirements for the Troux forms-based environment, which would provide OPDIV data architects with a functional tool that they can use to "assemble" their information exchange packages following the guidelines developed by the HHS joint ISE\Data Architecture team.

   Timeframe: Q4 FY09

Table 9: HHS ISE Segment Sequencing Recommendations

No.	Recommendation	Finding(s) Addressed	Investment Type	Services / Systems Impacted	Dependencies	Priority	Timing
R-1	**Secondarily map to Information Sharing Sub-Function 262 under the Information and Technology Management LOB**	**F-1 F-3 F-4 F-5 F10**	**N/A**	**E-Gov**	**ISE PHIN FHA caBIG™**	**Very High should be first**	**Q2 FY08**
R-2	**Complete Health Information Survey**	**F2**	**Ongoing**	IT Mgmt. E-Gov	**All potential ISE's**	**Very High Must be completed in Q2 FY08**	**Q2 FY08**
R-3	Create and Complete a Non-Health Information Survey	F2	O&M	IT Mgmt. E-Gov	N/A	High Must be completed in Q2 FY08	Q2 FY08
R-4	Create High Level Segment Architectures for Each Information Sharing Environment	F-6	New?	IT Mgmt. E-Gov	After R2	Very High Complete Q4 FY08	Q4 FY08
R-5	Analyze ISE Investments	F-8 F-10	N/A	IT Mgmt.	After R2	Very High	Q3 FY08
R-6	Create and Fund an ISE Organization	F-12	New	IT Mgmt.	After R5	High	Q4 FY08
R-7	Establish an ISE Council	F-1 F-3 F-4 F-5	O&M	IT Mgmt.	With R6	High	Q3 FY08
R-8	Conduct High Level Implementation Planning for ISE	F-7 F-9 F-12	O&M	IT Mgmt.	After R7	High	Q3 FY08
R-9	Establish an ISE Enterprise Architecture Framework	F-6 F-7 F-6	New	IT Mgmt. ISE	R-2 R-3 R-4 R-6	High	Q1 FY09
R-10	Update ISE Segment Architecture: Reconcile the Services Offered by the Many ISE's	F-7	New	IT Mgmt. ISE All ISE's	Concurrent with R-9	Medium	Q1 FY09
R-11	Select Common Technology Base for ISE	F-9	New	IT Mgmt. ISE All ISE's	After R-9	Low	Q2 FY09

No.	Recommendation	Finding(s) Addressed	Investment Type	Services / Systems Impacted	Dependencies	Priority	Timing
R-12	Decouple Data Interchange Standards from ISE	F-12	Ongoing	IT Mgmt. ISE All ISE's		Medium	

3.3.2 Information Technology Infrastructure (ITI)

a) Overview

Twenty-three (23) U.S. Federal civilian and military Departments/Agencies are participating in the IT Infrastructure Initiative (ITI) Line of Business (LoB) which aims to realize four long-term outcome goals:

1. Interoperability of functions across agencies and programs

2. Collaboration within and across agencies, sectors, and government levels

3. Reductions in total cost of commodity IT infrastructure and return of savings to agency missions

4. Improved governance of IT infrastructure investment in support of agency mission and government-wide goals

The government's business case seeks to save between 16% and 27% annually on its aggregate $21 B+ IT infrastructure budget, or between $18B-$29B over ten years, based on a five-year technology refresh cycle.

Key to delivering such results is the development of an analytical foundation to establish the means to assess performance in three IT infrastructure areas, as defined by the ITILoB:

- End User Systems and Support

- Mainframe and Server Services and Support

- Telecommunications Systems and Support

The ITI segment will optimize IT infrastructure and services, IT administration, management and oversight functions common to all Operating Division (OPDIVs). This segment facilitates a HHS optimized and cost-effective IT infrastructure enabling core agency missions and OPDIVs customer-centric services. This includes all categories of IT investment that are employed in the process of IT management and oversight. It also includes the traditional view of infrastructure such as networks and shared services. This segment shared infrastructure includes such things as help desks and support processes, common services and the infrastructure needed to deliver shared and federated services. The ITI segment also incorporates planning for Departmental enterprise initiatives that are intended to provide core or essential IT services in support of all HHS Staff Divisions (STAFFDIVs) and OPDIVs. These are fundamental elements in supporting

the Secretary's goal of managing HHS on an enterprise basis.   This consolidated and shared approach requires a highly organized, coordinated, and disciplined effort. The scope of the ITI segment has been redefined to accommodate the addition of new ITI initiatives and the addition of a milestone to track small OPDIV Indian Health Service (IHS) American Recovery and Reinvestments Act (ARRA) health IT projects, HHS special ARRA security projects, and OS ARRA security projects. The ITI segment is focused on the following initiatives:

1. Information Technology Infrastructure Line of Business (ITILoB) – an analysis of this initiative established to achieve an optimized, cost-effective, government-wide information technology infrastructure, while providing reliability and security in service, will determine what the HHS target environment should look like upon completion of this initiative in three phases:

   - Phase 1 - End User Systems and Support (EUSS)
   - Phase 2 - Mainframes and Servers Services and Support (MSSS)
   - Phase 3 - Telecommunications Systems and Support (TSS)

2. Trusted Internet Connection (TIC) – an analysis of IT assets that currently align to this initiative, and determination of the HHS target environment upon its completion.

3. Networx – an analysis of the best value telecommunications offered that includes providing for new technologies, industry partners and ways to achieve a more efficient, and effective government. Networx will allow HHS to focus their resources on building seamless, secure operating environments while ensuring access to the best technology industry has to offer.

4. Internet Protocol Version 6 (IPv6) – an analysis of the current IPv6 transition plan to determine the current environment within HHS for supporting IPv6; and what specific changes will be needed within HHS to support the transition. This analysis will focus on:

   - An assessment and update of communications components
   - Upgrade of appropriate operating systems and TCP/IP software products providing network services to support the migration from IPv4 to IPv6
   - Transition of WAN/Internet service providers/connections to IPv6 enabled and addressed WAN connections
   - Re-IP addressing appropriate servers, clients, and telecommunications components to employ IPv6 addresses

5. American Recovery and Reinvestment Act (ARRA) IT Security Projects – HHS will address OPDIV IT weaknesses and improve key information assurance capabilities to detect, defend, mitigate, and restore systems, in response to audits identifying urgent security weaknesses and high priority recommendations.

6. Federal Desktop Core Configuration (FDCC) Standard for Windows - in collaboration with its OPDIVs, HHS adapted the standard provided by the National Institute of Standards and Technology (NIST) and made appropriate adjustments to best suit the HHS Environment.

b) Findings and Recommendations

HHS Office of the Chief Information Officer (OCIO) will be following the ITILoB recommended ITI Optimization implementation approach; however, the HHS OCIO has encouraged OPDIV CIOs (or their designated representatives) to adapt a transformation strategy that satisfies their individual needs while meeting HHS OCIO's expectations:

- Collect data or representative data samples from distinct and logical organizational groupings by participating agencies using the Gartner workbook and data collection tool. Where organizational sub-groupings are identified, these units will be rolled up into an OPDIV representation.

- Use the data or data samples plotted against the industry average.

- Set annual improvement targets in both cost efficiency and service levels to address the established metrics.

- Set quarterly targets for refining the OPDIV data as necessary to reflect implementation of optimization decisions, and plan to report to OMB on progress.

- Measure performance against the metric for each IT infrastructure area, by assessing improvements in the cost efficiency and service level components to show progress toward the target.

- Include all critical partners (*e.g.,* Enterprise Architecture (EA), Capital Planning and Investment Control (CPIC), Security, Human Resources, Budget/Finance, and Acquisition) as part of the ITI LoB optimization planning process to ensure that implementation strategies are coordinated with on-going EA Infrastructure and Security Segment development activities, security initiatives (*e.g.,* Trusted Internet Connection), and to ensure that future acquisition strategies and terms facilitate optimization and ITI LoB reporting.

- Based on the previously delivered HHSNet Architecture, deploy and implement the network backbone for the IPv6 upgrades. There are three facilities that will need to be transitioned, Humphrey, Parklawn and Atlanta. The intended architecture deployment will be dual-stack. The specific architecture design for each segment will be based on requirements and cost-benefit analysis. The connection between HHSNet and individual OPDIV backbones may apply a gateway approach.

- Determine risk factors in providing high availability internet connectivity by identifying internal and external threats in support of TIC. Also, when reducing the number of internet connections, the physical link connecting HHS to the Internet Service Provider (ISP) can be a single point of failure.

- NIST recommended the setting of 'Enabled:Disable' is understood to be potentially problematic for some OPDIVs and was modified within the HHS FDCC Standard to provide additional flexibly. Also, many CMS business applications use ActiveX controls and FDA does not use Windows Firewall.

- NIST recommended HHS to enforce an universal enforcement of maintaining password history and the length and age of passwords.

The following is a summarized overview report of benchmarking and performance measurement findings, results and analysis related to the three IT infrastructure areas: End User Systems and Support (EUSS); Mainframe and Server Services and Support (MSSS); Telecommunications Systems and Support (TSS) within the IT Segment. The high-level results are as follows:

- HHS is generally a lower cost provider of IT infrastructure services
  - With the exception of Wintel servers Cost per Server, and Cellular Calling Cost per Minute, HHS is either within or below the industry ranges for all the benchmarked areas
- Staffing levels are generally lower than the industry ranges
  - Productivity metrics in the networking areas are particularly high
  - Wide Area Voice (Long Distance) is the exception
- Service Levels for the EUSS and TSS areas are below industry targets
  - MSSS Service Levels are near or at industry targets, but have declined from FY2007 reported levels
  - Client & Peripherals Service Levels are improved from FY2007, but still below industry targets
- Improved understanding of the data requirements, combined with more accurate data resulted in some significant variations in spending
  - Particularly in the MAN, Cellular Calling, Wide Area Voice (Long Distance) and IBM Mainframes functional areas
- There are large amounts of uncategorized, mostly outsourced costs in some HHS OPDIVs
  - Transparency of spending would provide a basis for effective cost management

After the data collection for each participating OPDIV was analyzed, its results were benchmarked, performance measurements were identified and the following are the recommendations from this analysis related to the three IT infrastructure areas: End User Systems and Support (EUSS); Mainframe and Server Services and Support (MSSS); Telecommunications Systems and Support (TSS) within the ITI Segment. The following are the key observations and potential opportunities based on the data collected:

- **EUSS Client & Peripherals**
  - **Costs**
    - The Cost per User is $1,676, just below the midpoint of the industry range for very large environments, and $100 lower than FY2007
    - The Cost per Device is $1,370, nearly at the bottom of the industry range, and 5% lower than FY2007
  - **Service Levels**
    - Service restoration times remain below industry target at the agency level
    - With 37% of the user population, NIH's reported levels of 30% below industry target weighs down the other OPDIVs' service levels which are at or above industry target
  - **Staffing Levels**

- Agency staffing levels are slightly higher than the industry range top. Overall staffing levels have decreased by nearly 30% from FY2007, mostly the result of better definitional understanding at IHS
  - **Productivity**
    - Staff productivity is within the industry range, but nearer to the bottom than the midpoint
  - **Largest Cost Gaps**
    - HHS appears to be under-spending in hardware, but $13M in unallocated (uncategorized) outsourced costs in CMS and OS most likely contains hardware as well as software
  - **Other Findings**
    - A categorization of the outsource costs would create a much clearer picture of opportunities for efficiencies at HHS
- **EUSS IT Help Desk**
  - **Costs**
    - The Cost per Handled Contact is $22.27, near the bottom of the industry range, and 13% higher than FY2007. Among the OPDIVs, the cost ranges from $13 to $31
  - **Service Levels**
    - Service levels are mixed;
      - First Contact Resolution is higher than the industry target, while Speed to Answer is almost 17% below the industry target
      - Speed to Answer has dropped from 87% within 45 seconds in FY2007 to 75% in FY2008
  - **Staffing Levels**
    - Staffing levels are below the industry range bottom, but have increased by 10% from FY2007
  - **Productivity**
    - Reflecting the lower staffing levels, HHS' productivity is above the industry range top
  - **Largest Cost Gaps**
    - Hardware costs are $1M higher than the top of the industry range
    - Personnel costs are $3M lower than the bottom of the industry range
  - **Other Findings**
    - The number of contacts per end-user is increasing in several OPDIVs (15.8 contacts per year vs. 14.2 in FY2007 in OS), possibly an indicator of increasing complexity and demand for support
- **EUSS Aggregate**
  - **Total Client & Peripherals and IT Help Desk**
    - **Costs**
      - The Total Cost per User is $1,934, within the industry range, and 5% lower than FY2007
      - The Total Cost per Device is $1,581, at the bottom of the industry range, and virtually unchanged from FY2007
    - **Other Findings**

- Increases in IT Help Desk contacts could stress the generally high service levels at most of the HHS OPDIVs
- **MSSS Mainframes**
  - **Costs**
    - The IBM Mainframe Cost per MIPS is $4,859, within the industry range, and 20% lower than FY2007
    - NIH had inadvertently excluded a processor and it's associated MIPS in FY2007, creating an inaccurate metric
  - **Service Levels**
    - The overall availability percentage is below industry target
    - CMS is the low element and has declined since FY2007
  - **Staffing Levels**
    - Staffing levels appear very low as a result of CMS' large workload and small staff
  - **Productivity**
    - As a result of the low staffing numbers, IBM Mainframe staff productivity is much higher than the top of the industry range
  - **Largest Cost Gaps**
    - The largest gap is in Software where HHS is $14M higher than the industry range top
    - Personnel are $10M lower than the industry range bottom
  - **Other Findings**
    - Hardware costs have risen 24% over FY2007, adding to a category that was already at the top of the industry range
- **MSSS Servers**
  - **Costs**
    - The UNIX Cost per Server is $48,977, close to the mid-point of the industry range, and 6% higher than FY2007
    - The UNIX Cost per OS Instance is $29,824, within the industry range, at 12% above the bottom
    - Wintel Cost per Server is $16,106, above the industry range top, and 1% higher than FY2007
    - The Wintel Cost per OS Instance is $12,874, 12% below the top of the industry range
    - Linux Cost per Server is $11,986, within the industry range, and nearly unchanged from FY2007
    - The Other Midrange Server Cost per Server is $28,988, below the bottom of the industry range
  - **Service Levels**
    - Availability percentages for UNIX and Wintel are higher than FY2007, yet remain below industry targets. Linux and Other Midrange Servers' availability percentages are above the industry targets
  - **Staffing Levels**
    - With the exception of Wintel, the number of FTE's/Contractors are near the industry range bottoms. IHS' more distributed environment puts overall Wintel staffing levels at 17% above the top of the industry range

- o **Productivity**
  - Across the server platforms, productivity is either within the industry ranges or above the tops
- o **Largest Cost Gaps**
  - The largest cost gap is in the Wintel platform's Personnel costs, which are $6M higher than the top of the industry range
- **TSS Data Networking**
  - o **Costs**
    - The WAN Cost per Device is $202, 52% below the bottom of the industry range, and 21% lower than FY2007. All the OPDIVs are below the industry range bottom
    - The MAN Cost per Gigabyte is $1.59, 38% below the bottom of the industry range, and 22% lower than FY2007. All OPDIVs reporting on MAN are below or within the industry range
    - The LAN Cost per Active Port is $156, 22% below the bottom of the industry range, and 5% lower than FY2007
    - The Internet Access Cost per GB is $3.01, less than ½ the bottom of the industry range, yet nearly 7% higher than FY2007. IHS is the only OPDIV above the industry range top
  - o **Service Levels**
    - HHS service levels for data networking are below the industry targets
  - o **Staffing Levels**
    - Combined staffing levels are either below or within the industry ranges. Staffing levels for WAN are less than ¼ the industry range bottom. With the exception of LAN (up 20%), staffing levels changes from FY2007 are small
  - o **Productivity**
    - Productivity is higher than the industry range tops, reflecting the lower staffing levels
  - o **Largest Cost Gaps**
    - Hardware costs are lower than industry range bottoms in most of the data networking areas, exceedingly so in WAN
    - Personnel costs are significantly lower in both WAN and Internet Access, $17M and $7M lower than the bottoms of the industry ranges, respectively
  - o **Other Findings**
    - IHS' reported traffic is low for its structure and may be under-reported
- **TSS Voice Networking**
  - o **Costs**
    - The Wide Area Voice (Long Distance) Cost per Minute is $0.0442, at the top of the industry range, and 41% less than FY2007
    - The Voice Premise Technology (Local Calling) Cost per Extension is $190, 47% lower than the bottom of the industry range, and 35% lower than FY2007
    - The Cellular Calling Cost per Minute is $0.1898, 2X higher than the top of the industry range, and 2.7X higher than FY2007
    - Video Teleconferencing Cost per Minute is $0.6123, 87% lower than the bottom of the industry range, and 23% lower than FY2007

- o **Service Levels**
  - ▪ Availability percentages are below the industry targets
- o **Staffing Levels**
  - ▪ Staffing levels are above the industry range tops in WAV, Cellular Calling, but below the industry range bottoms in VPT and VTC. Headcount was reduced in all areas in FY2008, except Cellular Calling
- o **Productivity**
  - ▪ As would be expected, staff productivity is well below the industry range bottoms in WAV and Cellular Calling where the FTE counts are very high
- o **Largest Cost Gaps**
  - ▪ Personnel costs represent the largest gaps, either much higher than industry range tops or exceptionally lower than industry range bottoms
  - ▪ Cellular Calling Transmission costs are 2X higher than the top of the industry range
- o **Other Findings**
  - ▪ Cellular minutes are declining at all OPDIVs but FDA; contract levels may warrant adjustment
  - ▪ The extreme staffing level comparisons begs the question whether FTEs were allocated appropriately

- Benchmarking results should be reviewed carefully; some areas may identify symptoms that warrant special focus
- Can you confirm the numbers? Are costs, workload reported accurately?
- Follow the trail: review the indicators to determine root causes
  - o Review effectiveness metrics (service levels, customer satisfaction, business alignment, etc.)
- Develop an action plan; identify corrective objectives/projects
- Measure again to track movement towards goals
  - o Keep in mind that ITI LoB has intentionally identified target ranges, not single values, as mission requirements necessitate varying levels of investment and that cost efficiency is only one side of the equation
- For HHS, some areas for review include:
  - o Impact of low staffing levels on delivery of services in MSSS, data networking
  - o Examine the effects of lower delivered service levels on customer satisfaction and effective delivery of services
  - o Clarifying uncategorized outsourced costs for better understanding and control
  - o High staffing levels in commodity voice networking areas
  - o High software spending for IBM Mainframes
- The HHS OPDIVs have differing strategies for supporting their environments: mostly in-house, mix of in-house and contractors, high use of contractors and highly outsourced
  - o No single strategy stands out as particularly advantageous to be leveraged for other OPDIVs
  - o NIH's all in-house Client and Peripherals support places them slightly higher in cost, but still within the Industry range
- The HHS OPDIVs have differing strategies for supporting their environments

- o A 'help desk' at each of 128 locations can create inefficiencies both in cost and processes
  - At some locations, the same people are performing all functions
  - Better asset management and reporting will help control the desktop lifecycle in a distributed environment
- Benchmark observations have consistently shown that size is the single most important factor in influencing cost efficiency for mainframe and server environments. Greater scale provides leverage in vendor price and service negotiations, as well as lowering support costs. Additionally, larger organizations tend to be better able to match staffing requirements to workload requirements, in terms of both numbers and skill sets. Therefore, it was recommended that it is appropriate to make adjustments for organization/IT infrastructure configuration size in cost efficiency comparisons. Recognizing the impact of scale on cost efficiency, the following individual size-based ranges for EUSS were developed by Gartner for this comparison and accepted by the ITI LoB ESC on 8/15/07:

EUSS	Small	Medium	Large	Very Large	No Impact for Scale
Client & Peripherals	<3,000	3,000 - 12,000	12,001 - 22,000	>22,000	
IT Help Desk					X

- Benchmark observations have consistently shown that size is the single most important factor in influencing cost efficiency for mainframe and server environments. Greater scale provides leverage in vendor price and service negotiations, as well as lowering support costs. Additionally, larger organizations tend to be better able to match staffing requirements to workload requirements, in terms of both numbers and skill sets. Therefore, it was recommended that it is appropriate to make adjustments for organization/IT infrastructure configuration size in cost efficiency comparisons. IBM Mainframe, UNIX Servers and Wintel servers were segmented into three groups of small, medium and large.

MSSS	Small	Medium	Large	No Impact for Scale	Other
IBM Mainframe	<1,000	1,000 - 10,000	>10,000		
Other Mainframe					"Other Mainframes" varies on case by case basis
Unix Servers	<50	51 - 350	>350		
Wintel Servers	<200	201 - 500	>501		
Linux Servers				X	
Other Servers				X	

- Most of the TSS IT Infrastructure areas do not require adjustment based on workload size
  - o The exception is the Wide Area Voice (Long Distance) area where there is a unit cost savings to be had for high volume environments. Gartner has provided two ranges for this area:
    - o Wide Area Voice (Long Distance) annual call minute volumes below 30 million
    - o Wide Area Voice (Long Distance) annual call minute volumes above 30 million

c) Transition Overview

Cost-effectiveness in technology represents responsible stewardship over taxpayer dollars as well as responsible and effective management of human resources. Over the years, OPDIVs developed their own infrastructure and methods of managing computer technology. To optimize these disparate infrastructures, reduce duplication of effort, and stabilize the technical environment, HHS is actively incorporating business process solutions as follows;

- Deploy standardized platforms and applications to enable stronger cyber security
- Enhance service delivery while reducing costs
- Increase efficiency through a simplified, seamless operating environment
- Establish central knowledge base for faster problem resolution
- Improve economies of scale in operations through department-wide standards enabling greater purchasing power

Additionally, HHS has initiated several strategies for improving its IT Infrastructure.

ITI Consolidation. This strategy employs the sharing and reuse of common, standards-based materials and programs that support the business of computer technology. An example of this strategy is using the same physical systems (networks, servers, and help desks). Both the small OPDIVs and larger OPDIVs such as FDA achieved some degree of ITI consolidation.

TIC Common Solution. In response to OMB M-08-05, HHS will adopt a common solution for all external connections. This affects more than just the Internet. The TIC initiative covers all connectivity to Federal networks, including those involving contractors, partners, state and local governments, and educational, health and research institutions. TIC will support security for the overall network environment.

IPv6 Upgrades. The existing protocol supporting the Internet today - Internet Protocol Version 4 (IPv4) - provides the world with approximately 4 billion IP addresses, inherently limiting the number of devices that can be given a unique, globally routable address on the Internet. The emergence of IPv6 will provide a much greater number of available IP addresses and enhanced mobility features, is essential to the continued growth of the Internet and development of new applications leveraging mobile Internet connectivity. HHS complete migration of the backbone in June 2008 as required by OMB M05-22 and is currently conducting biweekly meetings of Enterprise IPv6 Workgroup with representation from OPDIVs/STAFFDIVs.

Desktop Standardization. With the focus on security and optimization, general-purpose environments such as managed desktops, laptops, and notebooks are the primary targets. HHS has implemented and is administering an information security and privacy program to protect its information resources. HHS established common standards for Windows configuration in response to M-07-11 that requires Agencies with Windows operating systems and/or plans to upgrade those operating systems must adopt standard security configurations by February 1, 2008.

A new consolidated ITI investment has replaced the following existing HHS IT Infrastructure Investments:

- CDC Information Technology Infrastructure – Unique Project Identifier (UPI) 009-20-02-00-01-1152-00

- CMS IT Infrastructure – UPI: 009-38-02-00-01-1150-00
- FDA Consolidated Infrastructure – UPI: 009-10-02-00-01-7031-00
- IHS Infrastructure, Office Automation, & Telecommunications (I/OA/T) – UPI: 009-17-02-00-01-1010-00
- NIH IT Infrastructure – UPI: 009-25-02-00-01-3109-00
- OS ASAM IT Service Center – UPI: 009-90-02-00-01-0001-00

Also in support of the American Recovery and Reinvestment Act (ARRA) the following supporting investments have been added;

- OS ASAM FOH Infrastructure and Office Automation – ITI Contributing – UPI: 009-90-02-00-02-3322-00
- HHS IPv6 Implementation – ITI Contributing – UPI: 009-00-02-00-02-0035-00
- HHS IT Security Projects (ARRA) – ITI Contributing – UPI: 009-00-02-00-02-0033-00
- HHS Networx Transition – ITI Contributing – UPI: 009-90-02-00-02-0032-00
- HHS Trusted Internet Connection – ITI Contributing – UPI: 009-00-02-00-02-0034-00

The optimization of this ITI investment will serve to increase services and decrease cost that will be realized by comparing Service Level Agreements (SLA) and cost vs. benchmarking upon the completion and implementation of the IOI initiatives.

d) Transition/Sequencing Plan

In accordance with ITI LoB requirements and working within HHS' existing federated IT infrastructure management model, HHS OCIO is requiring OPDIV CIOs (or their designated representatives) to develop and document OPDIV plans, using the GSA 5-Year Plan template, for optimizing their commodity IT Infrastructure and ultimately reducing infrastructure costs while maintaining quality of service. Specifically, OPDIV CIOs (or their designated representatives) are expected to:

- Develop a 5-Year Optimization Plan, using the GSA Template and following the guidance in this document, and submit it to HHS OCIO to be incorporated into an HHS Department-wide ITI LoB 5-Year Optimization Plan submission

- Implement the strategies outlined in their individual 5-Year Optimization plans and report the results to HHS OCIO quarterly and annually, according to a HHS OCIO process that will be the subject of future guidance.

As part of the ITI 5-Year Optimization Plan submission, OPDIVs are required to present plans to optimize the End User System and Support; Telecommunications Systems and Support; Mainframe and Server Services and Support Infrastructure areas in this submission. The remainder of this section addresses sequencing activities associated with the End User System and Support; Telecommunications Systems and Support; Mainframe and Server Services and Support activities contained within the OPDIVs ITI LoB 5-Year Optimization Plan.

The following Table 10 presents HHS OCIO's schedule for managing the development of a consolidated HHS Department-level ITI LoB 5-Year Optimization Plan Submission. Following

this table is a list of the HHS CIO's expectations associated with the schedule contained within the table. HHS has submitted a consolidated ITI 5-Year Optimization Plan to GSA/OMB on March 31, 2008 for the EUSS Infrastructure Area and will revise that ITI 5-Year Optimization Plan as required by GSA/OMB with the addition of the TSS and MSSS infrastructure areas.

Table 10: HHS ITI Transition/Sequencing Schedule

Segment Transition Milestone	Target Completion Date	Actual Completion Date
EUSS ITI LoB Optimization Plan Implementation (FY 2008)	9/30/2008	9/30/2008
TSS Infrastructure Optimization Plan Implementation (FY 2008)	9/30/2008	9/30/2008
MSSS Optimization Plan Implementation (FY 2008)	9/30/2008	9/30/2008
Special Infrastructure Initiative Implementation (FY 2008)	9/30/2008	9/30/2008
ITI Program Management and Planning (FY 2008)	9/30/2008	9/30/2008
Infrastructure Operations and Maintenance (FY 2008)	9/30/2008	9/30/2008
EUSS ITI LoB Optimization Plan Implementation (FY 2009)	9/30/2009	
TSS Infrastructure Optimization Plan Implementation (FY 2009)	9/30/2009	
MSSS Optimization Plan Implementation (FY 2009)	9/30/2009	
Special Infrastructure Initiative Implementation (FY 2009)	9/30/2009	
ITI Program Management and Planning (FY 2009)	9/30/2009	
Infrastructure Operations and Maintenance (FY 2009)	9/30/2009	
EUSS ITI LoB Optimization Plan Implementation (FY 2010)	9/30/2010	
TSS Infrastructure Optimization Plan Implementation (FY 2010)	9/30/2010	
MSSS Optimization Plan Implementation (FY 2010)	9/30/2010	
Special Infrastructure Initiative Implementation (FY 2010)	9/30/2010	
ITI Program Management and Planning (FY 2010)	9/30/2010	
Infrastructure Operations and Maintenance (FY 2010)	9/30/2010	
EUSS ITI LoB Optimization Plan Implementation (FY 2011)	9/30/2011	
TSS Infrastructure Optimization Plan Implementation (FY 2011)	9/30/2011	
MSSS Optimization Plan Implementation (FY 2011)	9/30/2011	
Special Infrastructure Initiative Implementation (FY 2011)	9/30/2011	
ITI Program Management and Planning (FY 2011)	9/30/2011	
Infrastructure Operations and Maintenance (FY 2011)	9/30/2011	
EUSS ITI LoB Optimization Plan Implementation (FY 2012)	9/30/2012	
TSS Infrastructure Optimization Plan Implementation (FY 2012)	9/30/2012	
MSSS Optimization Plan Implementation (FY 2012)	9/30/2012	
Special Infrastructure Initiative Implementation (FY 2012)	9/30/2012	

Segment Transition Milestone	Target Completion Date	Actual Completion Date
ITI Program Management and Planning (FY 2012)	9/30/2012	
Infrastructure Operations and Maintenance (FY 2012)	9/30/2012	
EUSS ITI LoB Optimization Plan Implementation (FY 2013)	9/30/2013	
TSS Infrastructure Optimization Plan Implementation (FY 2013)	9/30/2013	
MSSS Optimization Plan Implementation (FY 2013)	9/30/2013	
Special Infrastructure Initiative Implementation (FY 2013)	9/30/2013	
ITI Program Management and Planning (FY 2013)	9/30/2013	
Infrastructure Operations and Maintenance (FY 2013)	9/30/2013	
EUSS ITI LoB Optimization Plan Implementation (FY 2014)	9/30/2014	
TSS Infrastructure Optimization Plan Implementation (FY 2014)	9/30/2014	
MSSS Optimization Plan Implementation (FY 2014)	9/30/2014	
Special Infrastructure Initiative Implementation (FY 2014)	9/30/2014	
ITI Program Management and Planning (FY 2014)	9/30/2014	
Infrastructure Operations and Maintenance (FY 2014)	9/30/2014	
IPv6 Implementation Project (FY 2008)	9/30/2008	9/30/2008
IHS Health ITI Project (ARRA)	9/30/2009	
HHS Enterprise IT Security Projects (ARRA)	9/30/2010	
Networx Contract Transition Project	3/31/2011	
HHS Trusted Internet Connection Project	10/1/2014	
FY2009 SS Enterprise Filtering, Internet Web Filtering, and Data Loss Prevention Upgrade	9/30/2009	
FY2009 SS Enterprise File and E-mail Encryption Capability	9/30/2009	
FY2009 SS Enhanced Security Architecture Analysis and Roadmap Development	9/30/2009	
FY2009 SS OPDIV Security Engineering and Implementation Support	9/30/2009	
FY2009 SS IHS Investment	9/30/2009	
FY2009 SS ITO Investment	9/30/2009	
FY2009 SS CDC Investment	9/30/2009	
FY2009 SS CSIRC Investment	9/30/2009	
FY2010 SS Enterprise File and E-mail Encryption Capability	9/30/2010	
FY2010 SS Enhanced Security Architecture Analysis and Roadmap Development	9/30/2010	
FY2010 SS OPDIV Security Engineering and Implementation Support	9/30/2010	
FY2010 SS IHS Investment	9/30/2010	

Segment Transition Milestone	Target Completion Date	Actual Completion Date
FY2010 SS ITO Investment	9/30/2010	
FY2010 SS CDC Investment	9/30/2010	
FY2010 SS CSIRC Investment	9/30/2010	
TICAP Gap Analysis Document	5/28/2009	
TICAP Business Case and Alternatives Analysis Document	7/28/2009	
Collect and Assemble Enterprise Inventory	7/31/2009	
Collect and Assemble Network Diagrams	7/31/2009	
Draft Address Allocation Plan	9/30/2009	
Address Management System (Pilot)	9/30/2009	
Draft Implementation Plan	9/30/2009	
HHS CIO Council Approval	10/30/2009	
Address Management System (Procurement)	3/31/2010	
Address Management System (Implement)	6/30/2010	

HHS CIO 5-Year Optimization Plan Expectations

- Infrastructure is overhead expense and should be minimized consistent with providing required mission support

- OPDIV CIOs will use the ITI LoB 5 year plan process to add value to their infrastructure management

- OPDIV CIOs (or their designated representatives) will continue to find opportunities to lower cost/improve service

- HHS OCIO will defend legitimate costs/relate cost to service levels

- OPDIV CIOs (or their designated representatives) will be developing 5-Year ITI Optimization Plans that will be rolled up into an HHS Consolidated Plan

- OPDIV CIOs (or their designated representatives) will align existing ITI metrics/management controls with ITI LoB metrics, categories, and standards

- HHS will have a standard IT Infrastructure Architecture

    o ITI LoB (Commodity)

    o Other (Non commodity)

- HHS will align its ITI networks and update them based on the performance metrics defined within the government-wide IOI.

e)   Sequencing Recommendations

These sequencing recommendations will become part of an overall modernization transition blueprint supporting HHS Enterprise Transition Strategy. The schedule and timing of these recommendations may also be based on their funding impact. The recommendations should fall into one of the following categories;

1. New Investments

    - HHS will submit a consolidated ITI LoB E-300 for BY 2010
        o Consolidated ITI LoB E-300 supported by 6 OPDIV contributing ITI LoB E-300s
        o Shared infrastructure reported by lead/operating OPDIV
        o Content will be consistent with HHS 5-Year Optimization Plan
    - Separate non ITI LoB Infrastructure
        o Specialized non-dedicated infrastructure
        o Infrastructure dedicated to mission investments
        o Program Initiatives
        o Other
    - HHS will submit a remediation plan to OMB for developing a BY 2010 Consolidated ITI LoB E-300

2. HHS CIO Assumptions

    - HHS will be held to current performance levels regardless of benchmarks
    - Industry benchmarks will show improvement over time that we will be expected to match
    - Exhibit 300 consolidation will be limited to the scope of ITI LoB

3. HHS CIO Expectations

    - Infrastructure is overhead and should be minimized consistent with providing required mission support
    - OPDIVs will use the ITI LoB 5 year plan process to add value to their infrastructure management
        o Continue to find opportunities to lower cost/improve service
        o Defend legitimate costs/relate cost to service levels
    - OPDIVs will be developing 5-Year ITI Optimization Plans that will be rolled up into an HHS Consolidated Plan
    - OPDIVs will align existing ITI metrics/management controls with ITI LoB metrics, categories, and standards
    - HHS will have a standard IT Infrastructure Architecture
        o ITI LoB (Commodity)
        o Other (Non commodity)

- Completion of the government-wide IOI providing additional guidance toward the development of the IT infrastructure.

3.3.3 Information Security

a) Overview

The Secure One HHS Program fulfills multiple legislative requirements and helps to mitigate risk in response to an evolving IT environment where HHS is increasingly dependent on information systems to accomplish mission critical services. The Operating Divisions (OPDIVs) that make up HHS have historically operated within their own unique security environments due to their vastly different missions. This fact has resulted in OPDIV security programs responding differently to similar threats.

The Information Security Segment is currently realized through Secure One HHS, managed at the headquarters (HQ) level by the HHS Chief Information Security Officer (CISO), with controls the implementation responsibilities distributed across the OPDIVs. By managing the Secure One HHS at the HQ level, HHS achieves a consistent IT security baseline across the OPDIVs by relying on systematic and universal security requirements.   However, local implementation control within the OPDIVs enables the OPDIVs CISO to implement security controls within the confines of their unique operating environments.

The benefit of the Information Security Segment is the creation of an architecture that aligns IT Security core business processes with the supporting information technology assets and services.

The development of the Information Security Segment benefits all stakeholders - citizens and businesses, OPDIVs, and the HHS community by increasing trust and confidence, ensuring compliance, reducing administrative burdens, and establishing consistency and accountability. It is an enabler for e-government success and is a cornerstone of the HHS Strategic Plan as noted in Chapter 6 (Responsible Stewardship and Effective Management) of the plan:

> *Maintain a secure environment in which all aspects of security, privacy, and confidentiality are addressed.* HHS is an attractive high-profile target for hackers and those with malicious intent seeking sensitive medical information, homeland security first responder information, patent and intellectual property worth billions of dollars, and much more. In order to address these immediate challenges and comply with Federal legislation, HHS has developed a proactive, enterprise-wide information technology (IT) security program (Secure One HHS) to help protect the HHS IT infrastructure against potential threats and vulnerabilities. The Secure One HHS IT Security Program was designed to increase the baseline IT security posture across all HHS operating divisions while reducing reporting burdens for compliance with Federal mandates. The creation of this new security program, which spans the HHS IT community, Headquarters, and the operating divisions, is an important step in protecting HHS' ability to provide mission-critical services and maintain the public's trust and confidence in the quality of HHS services and business operations.

Segment stakeholders complete their updates to their baseline and target architectures, identifying any new Information Security Segment requirements for the upcoming year(s) and providing those requirements to the HHS Chief Architect and HHS EA PMO as requested.

As the OPDIVs move toward a shared infrastructure, the security risk assumed by one is shared by all. The status quo security practices that currently protect OPDIVs at varying levels today will not be enough. Baseline levels of security standards and practices need to be established to protect all OPDIVs in this federated environment. Information security cannot be an afterthought and must be integrated into the Department's vision, mission, and business lines. In addition, HHS has taken on a new role in homeland security and needs to improve its security practices to meet these obligations. It is critical that we incorporate security into the daily activities of HHS employees at all levels.

The Information Security Segment will promote strong governance with clearly defined roles, responsibilities, and security expertise. The development of the segment will then be driven by close coordination and collaboration with each OPDIV to ensure that their needs and expectations are identified and addressed. OPDIVs will then be responsible for custom implementation at their level, based on each OPDIV's unique needs and goals.

b)   Findings and Recommendations

The Information Security Segment Transition Plan is a critical component in the effective transformation of the security policies and activities at HHS. It describes the overall plan for the segment to achieve its target state within a specified timeframe and it links the HHS security-related investments to the target state segment.

To frame the gap analysis necessary for drafting the future Information Security milestones, the EA team carried out a series of stakeholder interviews with the Secure One Program Office staff and contractors. These interviews resulted in a set of findings that were subsequently expanded on and distilled into a collection of operational recommendations (see Section 7).   Furthermore findings from an FY08 Office of Inspector General audit of the Secure One HHS program, and a distilled set of goals from the previous Security Architecture Whitepaper have been included in the findings and recommendations.

In brief, the findings cans be classified into the following primary categories:

SF-1.   Management Oversight of Operating Divisions (OPDIV) Security Programs including

- Governance issues – where oversight of internal or OPDIVs activities needs to be improved
- Delegation of authority issues – where the decision-tree for certain types of security-related decisions requires clarification and/or formalization
- Implementation variance issues – where security controls are implemented slightly differently in various OPDIVs

SF-2.   Security Training

SF-3.   Plan of Action and Milestones

SF-4.   Network Architectures and Network Management

SF-5.   Internal Process and Communication Improvements

- Internal OCIO Collaboration – Security will coordinate efforts with CPIC, EA teams to develop consistency,
- Process automation issues – where processes (e.g., the compliance measurement audits) are carried out manually rather than in an automated fashion
- Communication issues – where the communication mechanisms between HHS and OPDIVs require improvements

SF-6.   Enhance Endpoint Protection

SF-7.   Enhance Incident Response and Coordination

SF-8.   Enterprise Situational Awareness

SF-9.   Security strategy and budgetary alignment

The recommendations developed in response to the findings focus on increasing the automation and integration of existing processes among the Information Security Segment itself and between the OPDIVs.   These recommendations call for leveraging the existing data requests and aggregation tools and techniques in order to develop strong governance processes that provide the necessary security services to the OPDIVs, and place emphasis on good governance procedures to guide the Information Security Segment development.

Based on the findings, there were seven resulting high-level recommendations designed to address the findings and to achieve the future vision for the Secure One HHS Segment. Summary descriptions of the sixteen recommendations are provided in Table 11.

Table 11: Information Security Segment Recommendations Summary

No.	Recommendation	Finding(s) Addressed
SR-1	**Management Oversight of OPDIV Security Programs** Department security management should establish procedures to ensure that security programs are fully implemented at OPDIVs. At a minimum, the Department's oversight should include verifying and documenting OPDIV results.	**SF-1**
SR-2	**Security Training** The Department's security management should ensure that persons with significant security responsibilities take the annual security awareness training, and ensure that persons with significant security responsibilities receive specialized training that is directly related to their job responsibilities.	**SF-2**
SR-3	**Plan of Action and Milestones** Ensure that all identified security weaknesses are recorded in a System-, OPDIV-, or HHS-level POA&M.	**SF-3**

No.	Recommendation	Finding(s) Addressed
SR-4	**Network Architecture and Network Management** The Department's management should implement a process to ensure that penetration testing is performed by all OPDIVs.	**SF-4**
SR-5	**Internal Process Improvements** Develop HHS' performance management capabilities into an integral component of the HHS strategic planning, capital planning and investment control, and solution development processes	**SF-5**
SR-6	**Enhance Endpoint Protection** HHS should plan and develop an integrated strategy for protecting endpoints from malicious code that includes multiple layers of policy-driven and centrally managed protection	**SF-6**
SR-7	**Enhance Incident Response and Coordination** HHS should implement a centralized team to coordinate the Department's approach to incident detection and response.	**SF-7,** **SF-8**
SR-8	**Enterprise Situational Awareness** HHS has an urgent need to expand and enhance the Department cyber-security situational awareness, incident management, tracking, and response capability.	**SF-8**
SR-9	**Better align security strategy and budgets across the Department** Security control recommendations and requirements must be reflected in security budgetary planning.	**SF-9**

c)   Transition Overview

The Department of Health and Human Services (HHS) is a high profile target for hackers and others with malicious intent seeking sensitive medical information, homeland security first responder information, intellectual property, and financial and budgetary data. Like many other organizations, HHS is also challenged with the drop in productivity and loss of intellectual capital that occurs when viruses, worms, and other information technology (IT) security threats enter HHS' mission-critical systems.

Secure One HHS was established to strengthen the IT security posture across all HHS Operating Divisions (OPDIVs) while reducing reporting burdens for compliance with federal mandates. The creation of this security program, which spans the HHS IT community, Headquarters (HQ), and the OPDIVs, is an important step in protecting HHS' ability to provide mission-critical services and maintain the public's trust and confidence in the quality of HHS services and business operations.

In response to an evolving IT environment where HHS is increasingly dependent on information systems to accomplish mission critical services, HHS established an enterprise-wide IT security

program, Secure One HHS, to meet legislative requirements and mitigate risk. Secure One HHS consists of the following four functions: Enterprise Security, Outreach, Governance, and Finance and Budget.
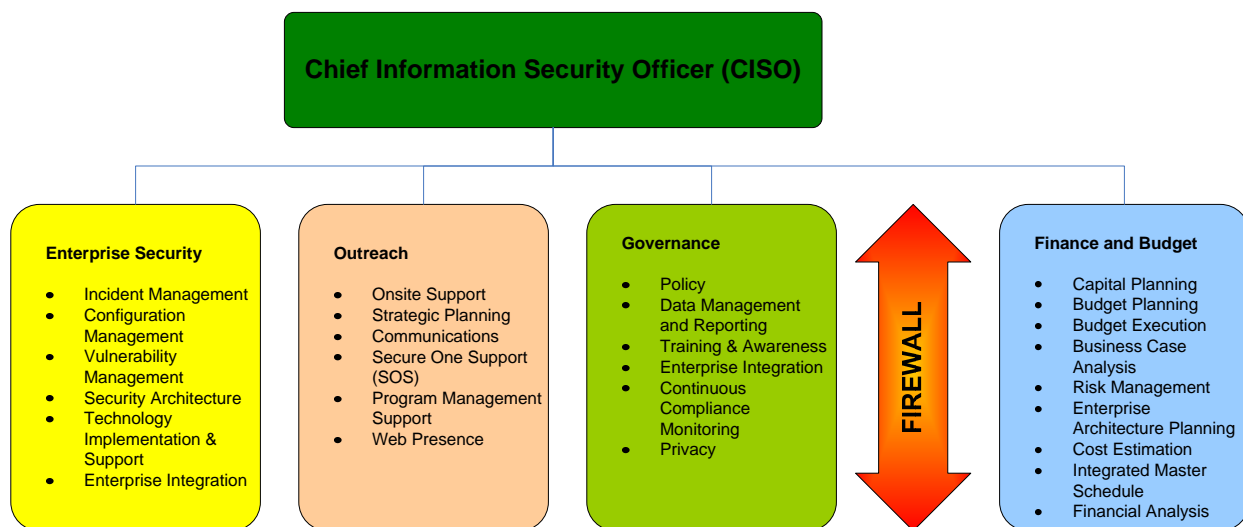
Figure 5: Secure One HHS Organization

The IT Security Segment builds upon the foundation laid by Secure One HHS in order to develop stronger governance processes that provide the necessary security services and oversight to the OPDIVs.

The Department's information security efforts are led by the HHS Chief Information Security Officer (CISO). The HHS CISO reports directly to the HHS Chief Enterprise Architect (CEA) and the Chief Information Officer (CIO) and has lead responsibility for all Departmental information security efforts. The HHS CISO is currently leading the development and implementation of Secure One HHS, which provides comprehensive support and guidance to OPDIVs on security policy and practices to ensure that activities throughout the Department and behaviors of HHS staff reflect the priority placed upon information security by the Secretary, congressional legislation, regulations, and the Administration.

Additionally, the HHS CISO has oversight responsibility for several security contracts that are managed through Secure One HHS. These contracts, encompassing areas such as security program and policy development, FISMA compliance assurance, privacy, and critical infrastructure protection (CIP) certification and accreditation (C&A), represent the key information security efforts being undertaken at HHS headquarters at this time.

Secure One HHS functions as an overarching Information Security program, managed at the HQ level by the HHS CISO, with control and implementation responsibilities distributed across the OPDIVs. By managing the program at the HQ level, HHS achieves a consistent information security baseline across the OPDIVs by relying on systematic and universal security requirements. Secure One HHS offers the OPDIVs flexibility in implementing security controls according to their unique operating environments.

Historically, Secure One HHS has focused on security policy and planning, and coordinated the implementation and operations with the various OPDIVs. This required a strong commitment in communications to establish trust and enable the Department to leverage the skilled resources in the OPDIVs to improve the HHS security governance capabilities.

Accordingly, the Governance and Communications processes were the primary focus of Secure One HHS in FY05 and FY06. These efforts sought to build trust between the OPDIVs and the Department and assist the OPDIVs in responding to federal audit requirements. Secure One HHS worked to raise the Department's FISMA grade by eliminating program gaps and coordinating and streamlining the reporting processes. This focus illustrates the maturity of the current Governance and Communications processes; the high degree of trust now shared by the OPDIV and Department security programs; and in the raising of the FY07 FISMA grade. Secure One HHS was able to improve both the OPDIVs ability to document and respond to audit requirements as well as address material weaknesses at an HHS and OPDIV level through a coordinated plan of action and milestone (POA&M) process.

Beginning in FY07 and moving forward, Secure One HHS has shifted its focus toward improving the security stance of the Department through the establishment of specific technical standards and the implementation of automated compliance tools to ensure that security standards are enforced. This evolution in the scope of the program has led to the conceptualization of HHS' IT security efforts as a set of components and services that converge under the umbrella of the IT Security Segment. In FY08 in coordination with OPDIV CISOs these initial efforts were scaled back and refocus into two key areas:

- **Establishment of an HHS Computer Security Incident Response Committee** – The HHS CSIRC will coordinate front-line security personnel at HHS to increase the overall security visibility, situational awareness, and coordination of security incident response at HHS. This area includes technical, procedural, and administrative efforts lead by the HHS Chief Information Security Officer office in collaboration with technical leadership from the OPDIVs.
- **Endpoint Protection Strategy** – The HHS IT infrastructure security is composed of those devices that provide the underlying connectivity and communications for HHS staff and contractors (e.g. desktops, routers, switches, and servers). Key changes in this arena will improve the security of the current installation.

In addition an FY08 audit of Secure One HHS by the HHS Office of the Inspector General (OIG) provided a number of Governance and compliance findings that will also be a focus area for the program:

- **Management Oversight Of Operating Divisions Security Program** – Department security management will establish procedures to ensure that security programs are implemented at OPDIVs. At a minimum, the Department's oversight should include verifying and documenting OPDIV results.
- **Plan of Action and Milestones** – The Department will ensure that all identified security weaknesses are recorded in the POA&M.

These primary focus areas will require coordination with the HHS Chief Technology Office that oversees three enterprise projects critical for ensuring the success of each of these efforts:

- **HHSMail** – The centralized mail services that provide the transport and protections for the primary collaboration tools of HHS employees and contractors.
- **Trusted Internet Connection** – The OMB mandated effort to reduce the government access points to the Internet. This effort will likely have impact on a number of Secure One HHS projects including the implementation of Einstein and other perimeter protections.
- **HHSIdentity** – This is the enterprise program that is directing the implementation of HSPD-12; distribution of the PIV-II identity card; and installation and integration of a new Public Key Infrastructure (PKI) and associated services.

d) Transition Milestones

Based on a review of the detailed recommendations identified through the segment architecture development process, and taking into account the additional priorities highlighted by the CIO Council, the Secure One program has targeted the following milestones, developed across four key categories: Enterprise Security, Governance, Outreach, and Privacy.

Table 12: Information Security Transition Milestones

Segment Transition Milestone	Target Completion Date	Actual Completion Date
Conduct review of progress against OPDIV Secure IT Infrastructure Implementation plans at Secure One HHS annual CISO Retreat	FY2009	OBE
Implement technology solution to protect from malicious code	FY2009	Recovery Act Dependant
Begin use of Personal Identification Verification (PIV) II card for network and remote access as infrastructure allows	FY2009	Changed to 2-Factor Auth in general
Assess new technology for enforcing software white list controls	FY2009	
Complete implementation of universal uniform resource locator (URL) monitoring and filtering on all Internet egress points	FY2009	Complete
Implement DNSSEC on all second-level domain name servers (DNS)	FY2009	In Progress
Develop concepts for Endpoint Protection at HHS including underlying technologies necessary to enable this capability	FY2009	In Progress
Initiate the development of a centralized log management system	FY2009	In Progress
Complete implementation of an enterprise-wide vulnerability and compliance scanner that is security content automation protocol (SCAP) compliant, in accordance with the OMB memorandum released on July 1, 2007, Establishment of Windows XP and Vista Virtual Machine and Procedures for Adopting the Federal Desktop Core Configurations	FY2009	In Progress
Complete implementation of Watchfire AppScan for scanning of pre production environments and implement a pre- production	FY2009	Complete

Segment Transition Milestone	Target Completion Date	Actual Completion Date
certification process		
Complete deployment of encryption on desktops at risk of loss or theft	FY2009	Complete
Develop and distribute additional minimum security configuration standards for HHS applications and operating systems	FY2009	Complete
Support the deployment of Einstein II	FY2009	On Hold
Provide Secure One HHS CIP to OSSI and ASPR for comment and review	FY2009	Complete
Elicit discussion on assignment of responsibilities for CIP internal to HHS with OSSI and ASPR	FY2009	Complete
Assist Department with any interdependency analyses and integrated risk assessments on IT critical functions and primary supporting assets (to include risk mitigation planning and review of defense-in-depth strategies)	FY2009	
Assist in updating previously completed assessments (e.g., 24 reports completed from 2003 to 2006)	FY2009	
Participate in enterprise architecture discussions to ensure accurate representation of security priorities	FY2009	In Progress
Continue to work with enterprise architecture stake holders to develop a robust security layer security layer	FY2009	In Progress
Engage stakeholders to communicate security requirements, initiatives, and perspectives	FY2009	In Progress
Assess effectiveness of standards for the integration of security by implementation, development, and operations teams – create and update as needed	FY2009	In Progress
Determine measurement and success criteria for evaluation of security integration efforts	FY2009	In Progress
Support OPDIV Security programs as they integrate their EPLC Critical Partner role into their processes	FY2009	In Progress
Support the modification of required guides, checklist	FY2009	In Progress
Develop the HHS CSIRC Concept of Operations (CONOPS) and supporting standard operating procedures (SOPs)	FY2009	In Progress
Develop and implement a Department-wide intrusion detection/prevention and security information event management strategy	FY2009	In Progress
Replace Secure One Support (SOS) as the incident reporting mechanism for HHS	FY2009	Complete
Evaluate previously implemented technologies and services for Incident Management to determine their effectiveness and identify additional needs	FY2009	In Progress
Identify attack-based metrics that can be collected to support Department-wide situational awareness	FY2009	In Progress
Develop and publish a set of policies and standards that improve the tools and process that HHS and OPDIVs use to monitor and protect networks and systems	FY2009	In Progress
Establish a baseline of cleared personnel to coordinate with intelligence community	FY2009	Complete

Segment Transition Milestone	Target Completion Date	Actual Completion Date
Establish a secured communications portal within HHS to facilitate off-channel collaboration	FY2009	OBE
Identify and establish incident response procedures and tool sets from within the OPDIVs	FY2009	In Progress
Grow and mature the Vulnerability Management capability through the use of Gideon SecureFusion, the Department-wide tool for the identification of vulnerabilities	FY2009	In Progress
Improve the use of existing resources and technologies to establish a consistent and effective security communications capability that proactively informs stakeholders of issues and distributes alerts and notices concerning emerging threats and newly identified vulnerabilities	FY2009	In Progress
Secure One HHS and OPDIVs provide implementation plans for modernization of security management infrastructure compliant with HHS CSIRC Standards	FY2010	In Progress
Assist Department with interdependency analyses and integrated risk assessments on IT critical functions and primary supporting assets (to include risk mitigation planning and review of defense-in-depth strategies)	FY2010	
Assist in updating previously completed assessments	FY2010	
Continue support and participation in enterprise architecture discussions to ensure accurate representation of security priorities	FY2010	
Continue to work with enterprise architecture stake holders to develop a robust security layer	FY2010	
Assess identified OPDIV and Department teams and expand as needed	FY2010	
Continue to integrate with and actively engage the identified groups to communicate security requirements, initiatives, and perspectives	FY2010	
Assess effectiveness of standards for the integration of security by implementation, development, and operations teams – create and update as needed	FY2010	
Determine measurement and success criteria for evaluation of security integration efforts	FY2010	
Evaluate effectiveness of security component of the EPLC program	FY2010	
Evaluate effectiveness of automated security tools to remediate software vulnerabilities	FY2010	
Implement a secure application development service for smaller development teams	FY2010	
HHS OCIO approves HHS CSIRC implementation plans	FY2010	
Secure One HHS and OPDIVs begin implementation of HHS CSIRC plans	FY2010	
Conduct review of progress against OPDIV Secure IT Infrastructure Implementation plans at Secure One HHS annual CISO Retreat	FY2010	
Integrate the Incident Management and Vulnerability Management capabilities to take advantage of logical links between them	FY2010	

Segment Transition Milestone	Target Completion Date	Actual Completion Date
Integrate multiple capability areas of Vulnerability Management (wireless scanning, web-base application testing, vulnerability scanning, compliance scanning, and penetration testing) into a comprehensive service package	FY2010	
Implement a risk based approach to the management of vulnerabilities	FY2010	
Enhance HHS CSIRC capabilities incrementally with expanded capabilities to handle analysis of security information from future consolidated HHS high volume networks	FY2010	
Implement strong authentication for all remote access to HHS systems	FY2010	
Finalize and release updated HHS Information Security Program Policy	FY2009	
Develop and implement additional policies and standards as needed	FY2009	
Conduct FISMA Program Compliance Reviews to validate that OPDIV security and privacy activities are conducted in accordance with Departmental and federal requirements	FY2009	
Track OPDIV progress in resolving financial system IT security-related findings	FY2009	
Address findings from the FY08 Inspector General (IG) audit of the Secure One HHS Program	FY2009	
Provide programmatic oversight to FY09 FISMA, Chief Financial Officer, and other information security-focused audits and evaluations	FY2009	
Publish monthly FISMA Dashboards to track the security and privacy status of HHS systems as reported via the FISMA reporting tool	FY2009	
Distribute quarterly data analysis reports to the OPDIVs	FY2009	
Evaluate automated tools for the completion of C&A documentation	FY2009	
Evaluate effectiveness of governance program and update as needed	FY2010	
Publish Monthly FISMA Dashboards	FY2010	
Conduct quarterly compliance reviews	FY2010	
Revise the FY09 Communications Plan as necessary	FY2009	
Support the FY09 CISO Retreat	FY2009	
Maintain the Secure One HHS Community in the Office of the Chief Information Officer (OCIO) Collaboration Portal	FY2009	
Assess Secure One HHS online content and develop recommendations for site enhancement	FY2009	
Launch the new IT Security Intranet site targeted at communicating awareness to HHS staff	FY2009	
Increase external communications by posting quarterly OCIO Highlights	FY2009	
Develop bi-weekly Assistant Secretary for Resource and Technology (ASRT) briefings	FY2009	
Increase communications with CIOs by presenting IT Security updates at monthly CIO Council Meetings	FY2009	

Segment Transition Milestone	Target Completion Date	Actual Completion Date
Increase external program exposure by participating in at least one conference or forum	FY2009	
Assist with communicating the Program's purpose to the incoming administration	FY2009	
Prepare response to ad-hoc requests from the CISO or other federal staff	FY2009	
Track ISS LoB Awareness Training Participation	FY2009	
Develop and release HHS customized ISS Awareness Training course	FY2009	
Update and implement current RBT courses as needed	FY2009	
Develop and implement additional topic-based training courses	FY2009	
Update the FY10 Communications Plan	FY2010	
Support the FY10 CISO Retreat	FY2010	
Increase external communications by posting quarterly OCIO Highlights	FY2010	
Develop bi-weekly ASRT briefings	FY2010	
Increase communications with CIOs by presenting IT Security updates at monthly CIO Council Meetings	FY2010	
Increase external program exposure by participating in at least two conferences or forums	FY2010	
Prepare response to ad-hoc requests from the CISO or other federal staff	FY2010	
Track ISS LoB Awareness Training Participation	FY2010	
Develop additional modules for ISS LoB Awareness Training course as needed	FY2010	
Update and implement current RBT courses as needed	FY2010	
Develop and implement additional topic-based training courses	FY2010	
Perform and develop privacy analyses for inclusion in the OPDIV FISMA Data Analysis Reports	FY2009	
Conduct privacy analysis for OPDIV Compliance Reviews	FY2009	
Monitor changes to system PIAs using the Security and Privacy Online Reporting Tool (SPORT)	FY2009	
Perform quarterly and annual PIA refreshes on the public-facing HHS PIA website (www.hhs.gov/pia)	FY2009	
Identify new Section 508 compliance methodology for posting PIAs	FY2009	
Incorporate changes to the HHS PIA form per comments provided via the FISMA Tool Working Group	FY2009	
Track OMB M-07-16 implementation and assist with Social Security number (SSN) Reduction Task Force activities	FY2009	
Increase OPDIV Senior Official for Privacy Community participation through regular communications and the development of an Senior Official for Privacy Working Group Charter	FY2009	
Respond to ad-hoc requests from OPDIVs, GAO, OMB, Congress, and others on privacy and PII protection at HHS	FY2009	

Segment Transition Milestone	Target Completion Date	Actual Completion Date
Conduct a National Institutes of Health (NIH) Tabletop Exercise to examine and refine the OPDIV's breach response policy and procedures	FY2009	
Transfer the Machine-Readable Privacy Policy Guide into a policy document with SOPs	FY2009	
Finalize and publish Macine-Readable Privacy Policy and SOPs	FY2009	
Finalize and publish PIA Policy and SOPs	FY2009	
Update Machine-Readable Privacy Policy training and subsequent worksheets	FY2009	
Develop an RBT course for breach response activities	FY2009	
Collaborate with Outreach team to review privacy compliance and PII protection as covered in the ISS LoB Awareness course	FY2009	
Participate and develop content for HHS Privacy Conference	FY2009	
Perform and develop privacy analyses for inclusion in the OPDIV FISMA Data Analysis Reports	FY2010	
Condut privacy analysis for OPDIV Compliance Reviews	FY2010	
Monitor changes to system PIAs using SPORT	FY2010	
Perform quarterly and annual PIA refreshes on the public facing HHS PIA website (www.hhs.gov/pia)	FY2010	
Track OMB M-07-16 implementation and assist with SSN Reduction Task Force activties	FY2010	
Respond to ad-hoc requests from OPDIVs, GAO, OMB, Congress, and others on privacy and PII protection at HHS	FY2010	
Conduct larger-scale NIH Tabletop Exercise to reexamine the OPDIV's breach response policy and procedures, or conduct other OPDIV tabletops per OPDIV CISO requests	FY2010	
Examine BRT documents and review other agencys' procedures to determine if additional best practices can be incorporated into HHS documents	FY2010	
Collaborate with Outreach team to review privacy compliance and PII protection as covered in the ISS LoB Awareness course	FY2010	
Develop additional privacy RBT or topic-based training courses per the recommendations/requests of HHS stakeholders	FY2010	

3.3.4 Patient Care

a) Overview

The Patient Care Segment is being developed by the Indian Health Service (IHS), as the only Health and Human Services (HHS) operating division with identified information technology investments in direct patient care. The IHS provides hospital and clinical care to American Indian and Alaska Native people throughout the United States.

The IHS' health information system is the Resource and Patient Management System (RPMS), which is related to the VistA system created and used by the Veterans Administration (VA). The IHS has been using RPMS since 1984 and boasts an ambulatory Electronic Health Record certified by the Certification Commission for Healthcare Information Technology (CCHIT). The RPMS is comprised of over 60 modules that provide support for clinical, business, and

infrastructure functions such as pharmacy, lab, behavioral health, and patient registration. RPMS also provides decision support tools to alert health care providers to important patient information.

Although RPMS is a robust health information system, some of the modules and foundational elements are in need of modernization. The Blueprint will identify those items slated for modernization. The IHS would like to participate more fully in data exchanges using standards and mechanisms such as the Nationwide Health Information Network (NHIN). The IHS has participated in the pilot of the NHIN and has seen the value of an integrated and central means of health information exchange. The ambulatory EHR certification is planned for renewal and the inpatient EHR CCHIT certification is a goal by FY2011. The IHS would also like to aid their patient population in self-management tools by providing first a paper-based and then an electronic personal health record (PHR). Because of the remote locations of many clinics throughout the Indian health system, telehealth is viewed as a means to bring patients and health care providers together. The IHS is investing in the video conferencing infrastructure necessary to facilitate secure and private medical consultation through telehealth tools.

The Patient Care Modernization Blueprint describes the major initiatives that IHS will focus on over the next two years. The factors or drivers that determine the content of the Blueprint are internal policies and plans as well as external mandates such as legislation, inter-agency agreements, and government-wide initiatives. It reflects planned budgetary commitments captured in the IHS IT portfolio and addresses mandated activities regardless of their actual funding status. In this way this Blueprint helps IHS draw attention to obligations, strategic gaps, and other risk areas, and provide strategies for mitigating such risks. This Blueprint includes efforts funded by the American Recovery and Reinvestment Act (ARRA).

This first version of the Patient Care Modernization Blueprint identifies the priorities of IHS in transforming health care delivery within IHS. It includes the activities or milestones that must be completed to support the priorities to transform the business environment. The activities included in this Blueprint cover the period from FY2009 through FY2011.

b) Findings and Recommendations

The initial iteration of the development of the Patient Care Segment has identified several performance gaps that can be addressed in the next two years. These performance gaps deal mainly with the health information technology system used by the IHS. As the Segment is developed further, it is expected that gaps in business processes, services, performance, and other areas will be discovered.

The performance gap analysis prepared as part of the FSAM has identified nine (9) areas for improvement. The Blueprint format calls for these to be identified through their Service Type. Each of the nine gaps is identified separately along with recommendations for closing the performance gap. In some cases, the service type is the same for different performance gaps so one may find more than one gap in a given service type.

i) Service Type: Customer Initiated Assistance

The Customer Initiated Assistance Service Type is within the Customer Services Domain and is defined as capabilities that allow customers to proactively seek assistance and service from an organization. In this case, the service that the customer would seek is an electronic personal health record (PHR). The PHR allows customers to self-manage health information that can be shared with family and providers, if desired.

Finding: Limited customer self-management of health data

Currently, the IHS has a paper-based Patient Wellness Summary that contains some of the elements that would comprise a personal health record. The Patient Wellness Summary is an output from the RPMS and cannot be managed by the customer.

Recommendation: Create or Partner for an Electronic PHR

A survey of news publications and the introduction of private PHRs indicates that people are interested in taking a more active role in their health management, including managing and sharing their health information. This is extremely important for the portability of health information among different providers who may not have data exchanges with each other. The IHS should implement an electronic PHR that has the ability to connect to the RPMS. The PHR can be hosted by entities such as Google Health or Microsoft Healthvault, or could be developed in-house from the VA's MyHealth*e*Vet application.

ii) Service Type: Tracking and Workflow

Capabilities within this Service Type are to provide automatic monitoring and routing of documents to the users responsible for working on them to support each step of the business cycle. The Tracking and Workflow Service Type is part of the Process Automation Services Domain. The two gaps identified in this area do not neatly fit into the traditional tracking and workflow of document management but are applicable because of the information sharing aspect of the service type.

Finding: Inability to match and view patient records at different service units

The distributed nature of RPMS enables a service unit to manage their patient records at their site; however, this strength is a weakness when trying to see all health care records for patients visiting separate sites. A patient seen regularly at a service unit is visiting family in another region and has to go to the Indian Health Service hospital in that area. The IHS hospital will not have easy access to the patient's records, even though they also run RPMS.

Recommendation: Implement an EMPI and technologies to exchange information between RPMS systems

The first finding of the inability to match patient records across different sites can be greatly improved through the implementation of an Enterprise Master Patient Index (EMPI). The EMPI uses probabilistic algorithms to match records of patients, including records that may have slightly different information such as nicknames instead of full names. The EMPI would allow a provider in site A to match patient records in sites B and C and use a standard viewer to view those records. The viewer can be the open source viewer (VistAWeb) from the VA or a COTS. The Nationwide Health

Information Network (NHIN) Gateway that IHS has already implemented in pilot could be the facilitating exchange mechanism among the sites.

iii) Service Type: Management of Process

The Management of Process Service type includes capabilities to regulate the activities surrounding the business cycle of an organization. This Service Type is applicable because of the service component, Quality Management. Certification of an EHR would be considered a mark of quality management.

Finding: Requirement to certify EHRs

IHS has earned the certification of its RPMS EHR for ambulatory care from the Certification Commission for Healthcare Information Technology (CCHIT). The certification for the ambulatory EHR has been a requirement from the Office of Management and Budget and is perceived as an industry standard. IHS will need to recertify the ambulatory EHR by 2011. In addition, requirements from CMS indicate that EHRs for inpatient care should be certified. IHS is committing to have the RPMS EHR for inpatient care certified by 2011.

Recommendation: Obtain EHR certifications

IHS understands the commitment necessary to obtain CCHIT certification through the certification of the RPMS EHR for ambulatory care. CCHIT certification criteria change with each year, requiring constant development of the system to address new standards. Business process and technology changes will occur as a result of the certification for inpatient and the renewal for ambulatory EHR. IHS will continue with its EHR product, making changes as necessary to accomplish the certifications/renewals by 2011. The recommendation is also to ensure the meaningful use of the certified EHR products, as specified in the Recovery Act.

iv) Service Type: Knowledge Management

Capabilities within this Service Type identify, gather and transform documents, reports and other sources into meaningful information. This service type is applicable for two gaps identified because of the service component Information Sharing.

Finding: Limited access to health care in remote locations

Limited access to health care deals with the geographic locations of health care clinics and the limited availability of primary and specialty care providers for those locations. There is a shortage of providers within IHS, especially for the most remote locations.

Recommendation: Increase telehealth tools

The problem of limited access to health care in remote areas is a multi-faceted problem that has roots in the overall shortage of providers, the lack of adequate housing and other facilities in the remote areas, the inability to recruit professionals to the areas, etc. These issues cannot be solved in this Blueprint. The recommendation to increase access to health care in remote areas is to enhance telehealth offerings. The first step is to ensure that an adequate infrastructure is available for

telehealth consultations. Of primary importance is a robust video conferencing infrastructure to facilitate "face-to-face" consultations.

v) Service Type: Document Management

Capabilities within this Service Type control the capture and maintenance of an organization's documents and files. The gap identified for this service type deals with the capture and storage of images used in health care. Although not documents, these images are managed like documents and files, hence this service type is the most applicable.

Finding: Limited access to patient medical images

The current structure of RPMS does not lend itself to the easy storage and retrieval of digital images, such as mammography and radiology images.

Recommendation: Augment RPMS to include medical images

The VA has a product called VistA Imaging that augments their VistA system, allowing the storage and easy retrieval of digital medical images. The recommendation is for IHS to implement VistA Imaging to enhance the IHS' access to patient information.

vi) Service Type: Financial Management

Capabilities within this Service Type provide the accounting practices and procedures to allow for the handling of revenues, funding and expenditures.

Finding: Cumbersome Revenue and Cost Management

The gap analysis of the revenue and cost management aspects of IHS health care has concluded that the existing Third Party Billing, Accounts Receivable, and Pharmacy Point-of-Sale modules have several points of weakness – manual processes, work-arounds, limited audit functionality, limited reporting.

Recommendation: Update or Replace Revenue and Cost Management

The weaknesses in the Revenue and Cost Management modules of RPMS are such that it was the Number One priority of the Information System Advisory Council (ISAC), comprised of IHS and Tribal representatives. IHS is undertaking a gap analysis from an outside firm to determine the gaps in the revenue and cost management applications as well as patient registration and scheduling (all modules sometimes referred to as practice management).The recommendation is for IHS to replace and/or update the Revenue and Cost Management modules of RPMS.

c) Transition Sequence Plan

The Patient Care segment has developed the following milestones for key transition activities.

Table 13: Patient Care Transition Milestones

Certified Electronic Health Record - Comprehensive Health	Acquire practice management solution (Revenue and Cost	December, 2010

Information	Management modules are part of practice management)	
	Certification of EHR (Inpatient)	September 30, 2010
Personal Health Record Adoption	Complete requirements for initial PHR	October-December, 2009
	PHR Adoption	December 31, 2010
Telehealth and Network Infrastructure	Implementation plans complete	July-September, 2009
	Begin Implementation	July-September, 2009
	Complete implementation	April-June, 2010

3.3.5 Financial Management

The Financial Management segment first received architecture development attention prior to the formalization of the "segment" concept within the Federal Enterprise Architecture, driven by an HHS initiative to consolidate multiple redundant financial management systems within the Department and to establish HHS as a financial management center of excellence under the OMB Financial Management Line of Business government-wide program. HHS submitted summary segment information for Financial Management to OMB as part of the evidence for the February 2007 EA assessment. Since that time, the implementation milestones corresponding to the segment sequencing plan have been achieved. Given the emphasis placed on financial management by OMB following the submission of segment lists by HHS and other reporting agencies, it is likely that the HHS Financial Management segment will be re-initiated to address cross-agency drivers and guidance.

The Unified Financial Management System (UFMS) is a business transformation effort, designed to integrate department-wide financial management systems and operations by aligning the Department's businesses with modern technological capabilities. UFMS replaced five legacy financial systems with one modern accounting system. UFMS will use a Web-based commercial off-the-shelf product to satisfy three categories of financial management systems requirements mandated by the Federal Financial Management Improvement Act. These are: (1) Federal financial management systems requirements (promulgated by the Office of Management and Budget (OMB) and the Joint Financial Management Improvement Program (JFMIP)); (2) Federal accounting standards; and (3) the United States Standard General Ledger at the transaction level.

Table 14: Financial Management Transition Milestones

Segment Transition Milestone	Target Completion Date	Actual Completion Date
Systems Assessment & Systems Integrator/COTS Selection	9/30/2001	9/30/2001
Design COTS Pilot and Interfaces	9/30/2002	9/30/2002
NIH - Travel Module deployed for Travel to occur in FY04	9/1/2003	9/1/2003
NIH - A/P and A/R for travel also deployed	9/1/2003	9/1/2003
NIH - Oracle GL Deployed	10/1/2003	10/1/2003

CDC - GL for Payroll Processing	10/1/2004	10/1/2004
FDA - GL for Payroll Processing	10/1/2004	10/1/2004
CDC - Remainder of Core Financial Management Functions	4/1/2005	4/1/2005
FDA - Remainder of Core Financial Management Functions	4/1/2005	4/1/2005
CMS - Implement 2 Medicare Contractors	6/1/2005	6/1/2005
NIH - Merge with Global UFMS	12/10/2005	12/10/2005
CDC - Grants Function available for processing all FY05 transactions	12/31/2005	12/31/2005
NIH - Property and Supply Chain Functions Deployed	3/1/2006	3/1/2006
CMS - Implementation of CMS Administrative Accounting	9/30/2006	9/30/2006
NIH - Migrate to eTravel solution	10/1/2006	10/1/2006
PSC - Begin Implementation at PSC & Customer Agencies.	10/1/2006	10/1/2006
PSC - Implement Migrate	6/1/2007	6/1/2007
CMS - Implementation at Contractors	6/30/2007	6/30/2007
Execute all necessary inter-agency agreements (MOU,IAA, etc.) and complete funding transfers as required per agreement	3/31/2007	3/31/2007
Execute all necessary inter-agency agreements (MOU,IAA, etc.) and complete funding transfers as required per agreement	6/30/2008	6/30/2008

3.3.6 Travel

The Travel segment first received architecture development attention prior to the formalization of the "segment" concept within the Federal Enterprise Architecture, driven by an HHS initiative to eliminate multiple redundant travel booking and logistics support systems and outsource travel services to a GSA-sponsored travel services provider through the E-Gov eTravel initiative. HHS selected a travel services provider and initiated a sequencing plan to migrate all Operating Divisions and Staff Divisions to the outsourced GovTrip system. As reported to OMB via E-Gov milestone submissions, HHS has completed that transition, and has no remaining milestones. Travel processes and services are fully outsourced using available services now managed under the FTF eTravel initiative.

Table 15: Travel Transition Milestones

Segment Transition Milestone	Target Completion Date	Actual Completion Date
5942 Vouchers processed	9/30/2005	9/30/2005
10500 Vouchers processed	12/31/2006	12/31/2006
10815 Vouchers processed	03/31/06	03/31/06
6474 Vouchers processed	6/30/2006	6/30/2006

Complete revised MOU with the E-Travel PMO and approved FTR extension with GSA (including new target dates for implementation)	6/30/2006	6/30/2006
8081 Vouchers processed	9/30/2006	9/30/2006
Continue deployment in accordance with the updated MOU	6/30/2007	6/30/2007
Modify HHS ETS Task Order to support the implementation tasks and schedule and fund the NIH requirements by March 31, 2007.	6/30/2007	6/30/2007
Work design/development tasks with NGMS.	9/30/2007	9/30/2007
Phase 1 (NIH) Go-Live for non-mission critical travelers	9/30/2008	9/30/2008
Phase 2 (NIH) Award no later than 5/30/08	9/30/2008	9/30/2008
Secure FTR Extension	9/30/2008	9/30/2008
Submit Phase 2 (NIH) Project Plan	9/30/2008	9/30/2008
Complete Phase 2 (NIH) Development	12/31/2009	12/31/2009
Complete Phase 2 (NIH) Testing	03/31/09	03/31/09
Begin mission critical travelers deployment	6/30/2009	
Process all agency travel vouchers through eTS vendor	9/30/2009	
Decommission legacy travel system for HHS/NIH	12/31/10	

3.4 In-Progress Segments

The segments summarized in this section are currently in-progress, having been initiated during the period since the previous version of the Enterprise Transition Strategy and EA Assessment Framework information was submitted to OMB in February 2008.

3.4.1 Capital Planning and Investment Control (CPIC)

The Capital Planning and Investment Control (CPIC) segment was initiated in March 2008 after segment identification and scoping activities performed by HHS personnel attending Federal Enterprise Architecture Certification (FEAC) training. Since that time the scope of the segment

has been expanded to include the HHS Enterprise Performance Life Cycle processes and activities (the documentation and policy formulation for which are overseen by the HHS Capital Planning Office) and has emphasized the close interaction among CPIC, Enterprise Architecture, Information Security, and Performance programs.

The CPIC segment has been developed and the transition plan is being reviewed. In light of the current efforts initiated by OMB to consider revisions to the federal IT budget planning and execution processes, this segment will be revised and updated in accordance with the results of that process. HHS is co-chairing the Federal IT Capital Planning Workgroup. Additionally, HHS is evaluating rolling this segment up to a broader-scope proposed segment, "Planning and Budgeting," that would also incorporate currently distinct segments identified by HHS for Enterprise Architecture, Strategic Planning, Budget/Performance Integration, and Performance Management. HHS will determine the exact consolidation of existing segments and composition of the Planning and Budgeting segment by September 2009.

3.4.2 Customer Service

In Summer 2008, CMS EA team engaged agency business owners to embark on a Customer Service Segment Architecture initiative that would deliver results and provide the framework for modeling the agency's business processes and guiding the investment processes. CMS is incrementally building the segment focusing first on the Member Community of Interest (COI). CMS began interviewing business owners across CMS that provide customer support services, focusing primarily on the Member COI. The team consolidated and evaluated the responses from the Member community stakeholder interviews to identify business risks facing each stakeholder and synthesize the common business risks. This allowed the team to finalize segment scope and drivers; prioritize investment opportunities; and establish the ground work for modeling the business processes within the Member COI. EA used this information to build detailed baseline BPMs for Member Customer Service activities. The information will be analyzed to identify commonalities among the business units to leverage reuse or consolidation and opportunities to improve operations through data sharing. EA will drill in on these opportunities in collaboration with primary stakeholders to begin drafting the baseline target model that include service enabled solutions for the segment. CMS anticipates completing the Member COI end of 2009 and completing the remaining COIs (Provider/Plan, Operations, Program Management) the end of 2010.

3.4.3 Enterprise Architecture

The Enterprise Architecture (EA) segment was initiated in 2008, with a scope defined to include HHS's Department-level EA program and those of its Operating Divisions, to the extent the OPDIVs have roles and responsibilities as stakeholders of the HHS EA Program. The EA segment has been developed and the transition plan is being reviewed. The segment IPT is looking at updating the segment with the impact from the latest changes to the EA Assessment Framework, segment architecture development, and reporting requirements. The completion of this segment is estimated for September 2009. Additionally, HHS is evaluating consolidating this segment into a broader-scope "Planning and Budgeting" segment, particularly in light of the interdependencies among EA, CPIC, IT strategic planning, and performance management. HHS

will determine the exact consolidation of existing segments and composition of the Planning and Budgeting segment by September 2009.

3.4.4 Food and Drug Supply Monitoring

The Food and Drug Supply Monitoring segment began its architecture development prior to the formalization of the current "segment" concept within the FEA, under the auspices of the Food Safety Working Group chartered under the Federal Health Architecture Program. The Food Safety architecture was reported to OMB in 2007 as part of the FHA program's population of the CHI/FHA initiative under version 1.0 of the Federal Transition Framework. While food safety remains a high priority mission area, following the enactment of the Food and Drug Administration Amendments Act of 2007, several additional mission areas of emphasis have been prioritized for action. These include post-market drug and product monitoring capabilities and activities such as those envisioned for the planned Sentinel initiative. The scope and areas of emphasis for the Food and Drug Supply Monitoring segment have been revised to reflect internal and externally-driven changes in mission priority, and the segment architecture development plan is being re-evaluated to reflect these changes.

In addition, the FDA is in process of implementing an Adverse Event Reporting System to support safety surveillance programs for tracking adverse events involving foods, cosmetics, and identifying other potential public health risks to provide feedback to industries. There have been several artifacts created in order to help with the implementation of these programs and segment (i.e., EASR / FSAM templates, and Segment profile). However, the "To-Be" architecture, which includes an up-to-date transition plan and business owner approval, is still in progress. Currently, the FDA EA team is coordinating discussions with various investment Project Managers of the segment in order to obtain accurate data for the "To-Be" state.

3.4.5 Grants Management

The Grants Management segment first received architecture development attention prior to the formalization of the "segment" concept within the Federal Enterprise Architecture, driven by an HHS initiative to consolidate multiple OPDIV grants-related systems to two enterprise-wide alternatives. As a segment, Grants Management was initiated in 2006 and first submitted to OMB with HHS' EAAF evidence for the February 2007 assessment. Grants Management was re-scoped in March 2009 to better accommodate the grants support requirements in the American Recovery and Reinvestment Act of 2009.

Grants Management segment work is currently focused on analyzing the As-is state of Grants Reporting and Monitoring and defining the changes in policies and business processes that need to take place for implementing the American Recovery and Reinvestment Act Section 1512 –the Quarterly Recipient Reporting. It includes performing a gap analysis of the impacted processes, data and systems and developing a transition strategy to allow HHS' OPDIVs to meet the ARRA's requirements. In the long term, it will involve defining a more centralized approach to grantee reporting on both performance and financial data and optimizing data quality and reporting capabilities across agencies and grants operating groups. The current iteration of the segment architecture development effort is targeted for completion by the end of calendar 2009.

3.4.6 Records Management

The Records Management (RM) segment was initiated early in 2009. The RM segment is currently reviewing the gap analysis and strategic opportunities derived from the as-is analysis conducted at the beginning of the year. The RM IPT is also working on the definition of the target architecture for this segment due at the beginning of July. Once the target conceptual solution is defined, the IPT will work on developing the transition plan and complete the segment by September 2009.

3.4.7 Supply Chain Management

The Supply Chain Management segment first received architecture development attention prior to the formalization of the "segment" concept within the Federal Enterprise Architecture, driven by an HHS initiative to consolidate multiple OPDIV acquisition system instances under the HHS Consolidated Acquisition System (HCAS) project. The architectural development of this subset of Supply Chain business functionality was completed and the business owner for approval. During the formulation of the HHS segment list in the summer of 2008, HHS determined that a broader-scope segment entitled "Supply Chain Management" was a more appropriate level of business functional decomposition, and the acquisition-specific architecture information was incorporated into the re-defined Supply Chain Management segment. The Supply Chain Management segment's scope and area of emphasis were revised again in March 2009 in order to accommodate new reporting requirements and government-wide focus placed on supply chain functions, including acquisitions as well as contracting (and contractor performance reporting), procurement, and the use of government-wide purchasing programs such as SmartBUY within the Federal Transition Framework.

3.5 Planned Segments

The following segments are planned for initiation:

- Epidemiology and Other Assessment Sciences (scheduled for initiation in June 2009)

- Public Health System Support (scheduled for initiation in the fourth quarter of 2009)

3.6 IT Investment Alignment to Segments

As part of continued efforts to integration EA and CPIC program activities and incorporate architectural analysis in investment planning, the HHS EA Program initiated a new information request for IT investments proposed for the FY2010 HHS IT investment portfolio to be aligned to a primary segment, selected from a common list of HHS segments. The results of this investment-to-segment alignment are presented at Appendix B.

3.7 IT Investment Milestones

In an effort to increase HHS' ability to accurately gauge progress of its initiatives and activities, IT investment owners have been asked to provide quarterly milestones for all major and tactical investments proposed for inclusion in the FY2010 HHS IT investment portfolio. These

investment milestones are stored in the HHS Portfolio Management Tool managed by the HHS Capital Planning and Investment Control (CPIC) Program. The resulting milestones are communicated to OMB through the EA Segment Reports.

Appendix A HHS SEGMENTS

Table 16: HHS Segments (with type and current status)

Segment Architecture Code (###-000)	Segment Architecture Name (Please limit to no more than one line)	Segment Architecture Type (Core Mission, Business Service or Enterprise Service)	Segment Architecture Status (Completed, In-Progress, Planned or Notional)
001-000	Benefits and Claims Management	Business Service	Notional
002-000	Eligibility and Entitlement	Business Service	Notional
003-000	Enrollment and Participation	Business Service	Notional
005-000	Information Security	Business Service	Completed
006-000	Medication Management	Core Mission	Notional
007-000	Patient Care	Core Mission	Completed
008-000	Patient Management	Core Mission	Notional
009-000	Pharmacy	Core Mission	Notional
011-000	Research Management	Core Mission	Notional
012-000	Research Operations	Core Mission	Notional
013-000	Technology Transfer	Business Service	Notional
014-000	Training and Education (Curriculum Development)	Core Mission	Notional
015-000	Vital Statistics and Surveys	Core Mission	Notional
016-000	Social Services	Core Mission	Notional
017-000	Analysis and Reporting	Enterprise Service	Notional
018-000	Change Management	Enterprise Service	Notional
019-000	Correspondence Management	Business Service	Notional
020-000	Data Management	Enterprise Service	Notional
021-000	Geospatial	Enterprise Service	Notional
022-000	Provider Management	Business Service	Notional
023-000	Partnership Management	Business Service	Notional
024-000	IT Infrastructure	Business Service	Completed
025-000	Knowledge Creation, Aggregation, and Translation	Business Service	Notional
026-000	Knowledge Management	Enterprise Service	Notional

Segment Architecture Code (###-000)	Segment Architecture Name (Please limit to no more than one line)	Segment Architecture Type (Core Mission, Business Service or Enterprise Service)	Segment Architecture Status (Completed, In-Progress, Planned or Notional)
027-000	Privacy Management	Business Service	Notional
028-000	Records Management	Enterprise Service	In-Progress
029-000	System Development	Business Service	Notional
030-000	System Maintenance	Business Service	Notional
031-000	Facility Management	Business Service	Notional
032-000	Financial Management	Business Service	Completed
033-000	Grants Management	Business Service	In-Progress
034-000	Human Resource Management	Business Service	Notional
035-000	Physical Security Management	Business Service	Notional
036-000	Program Management and Support	Core Mission	Notional
037-000	Revenue Collection	Business Service	Notional
038-000	Supply Chain Management	Business Service	In-Progress
039-000	Training and Education (Delivery)	Business Service	Notional
040-000	Travel	Business Service	Completed
041-000	Workforce Management	Business Service	Notional
042-000	Enterprise Architecture	Business Service	In-Progress
043-000	Business Analysis	Business Service	Notional
044-000	Capital Planning (CPIC)	Business Service	In-Progress
045-000	Continuity of Operations	Business Service	Notional
046-000	Customer Service	Business Service	In-Progress
047-000	Education and Outreach	Business Service	Notional
048-000	Budget/Performance Integration	Business Service	Notional
049-000	Inspections and Auditing	Business Service	Notional
050-000	International Affairs and Commerce	Business Service	Notional
051-000	Information Sharing Environment	Enterprise Service	Completed
052-000	Performance Management	Business Service	Notional
053-000	Policy Development	Business Service	Notional

Segment Architecture Code (###-000)	Segment Architecture Name (Please limit to no more than one line)	Segment Architecture Type (Core Mission, Business Service or Enterprise Service)	Segment Architecture Status (Completed, In-Progress, Planned or Notional)
054-000	Program Control and Oversight	Business Service	Notional
055-000	Public Affairs	Business Service	Notional
056-000	Quality Management	Business Service	Notional
057-000	Risk Management	Business Service	Notional
058-000	Rules and Regulations Development	Business Service	Notional
059-000	Strategic Planning	Business Service	Notional
060-000	Border and Transportation Security	Core Mission	Notional
061-000	Disaster Management	Core Mission	Notional
062-000	Emergency Preparedness	Core Mission	Notional
063-000	Emergency Response	Core Mission	Notional
064-000	Epidemiology and Other Assessment Sciences	Core Mission	Planned
065-000	Environmental Health	Core Mission	Notional
066-000	Food and Drug Supply Monitoring	Core Mission	In-Progress
067-000	Hazardous Materials Safety	Core Mission	Notional
068-000	Health Monitoring	Core Mission	Notional
069-000	Health Promotion	Core Mission	Notional
070-000	International Development and Humanitarian Aid	Core Mission	Notional
071-000	Public Health Laboratory Science and Services	Core Mission	Notional
072-000	Public Health System Support	Core Mission	Planned
073-000	Product Review and Approval	Core Mission	Notional
074-000	Public Health Practice	Core Mission	Notional

Appendix B HHS INVESTMENT ALIGNMENT TO SEGMENTS

Table 17: HHS Investments Aligned to Segments (with Business Area)

IT Investment	Segment
ACF AFCARS	Social Services
ACF Application Infrastructure	Social Services
ACF Capital Planning and Policy	Social Services
ACF Child Care Bureau Information System	Social Services
ACF Early Childhood Learning and Knowledge Center - ECLKC (OHS)	Social Services
ACF Enterprise Grants Support	Social Services
ACF Expanded Federal Parent Locator Service (OCSE)	Social Services
ACF Final TANF Data Reporting System	Social Services
ACF Grant Application Budget Instrument - GABI (OHS)	Social Services
ACF Grant Support Systems	Social Services
ACF GrantSolutions.gov / Grants Administration Tracking Evaluation System (GATES) - Grants Center for Excellence	Grants Management
ACF Head Start Enterprise System - HSES (OHS)	Social Services
ACF Head Start Monitoring System (OHS)	Social Services
ACF IT Grants to States	Social Services
ACF Program Information Report (OHS)	Social Services
ACF Security/PDD 63	Information Security
ACF Web Presence	Social Services
AHRQ Application Maintenance	System Maintenance
AHRQ Business Operations Activities	System Development
AHRQ Consumer Assessment of Healthcare Providers and Systems (CAHPS)	Vital Statistics and Surveys
AHRQ Electronic Dissemination Activities	System Development
AHRQ Enterprise Analytics	Vital Statistics and Surveys
AHRQ Extramural and Intramural Research, Management and Reporting Activities	System Development
AHRQ Healthcare Cost Utilization Project (HCUP)	Vital Statistics and Surveys
AHRQ HIV Data Center (HIVNET)	Vital Statistics and Surveys
AHRQ IT Operations	System Maintenance
AHRQ Medical Expenditures Panel Survey (MEPS)	Vital Statistics and Surveys
AHRQ National Quality Measures Clearinghouse	Public Health Practice
AHRQ National Resource Center for Health IT	Public Health Practice
AHRQ Patient Safety Research Coordinating Center	Public Health Practice
AHRQ Planning, Monitoring and Reporting Activities	System Development
AHRQ Planning, Tracking and Performance Monitoring Activities	System Development
AHRQ Programmatic Activities	System Development
AHRQ Web Morbidity and Mortality Rounds on the Web	Health Monitoring
AoA Custom Desktop and Communications	Program Management and Support
AoA Enterprise Architecture, CPIC, and Policy Planning	Capital Planning (CPIC)
AoA Information Retrieval and Web Presence	Program Management and Support
AoA National Aging Program Information System (NAPIS)	Program Management and Support
CDC Archival Specimen Tracking and Retrieval Operations21C	Public Health Laboratory Science and Services
CDC ATSDR Geographic Information System	Epidemiology and Other Assessment Sciences

IT Investment	Segment
CDC Capital Planning and Investment Control including ESC	Capital Planning (CPIC)
CDC CCID DHAP: Electronic HIV/AIDS Reporting System (eHARS)	Health Monitoring
CDC CCID Extramural Grants (Extramural)	Public Health System Support
CDC CCID GRANITE Animal Records System	Supply Chain Management
CDC CCID Grants Information Systems for Immunization (formerly Program Annual Progress Assessment	Grants Management
CDC CCID HIV Prevention Program Evaluation and Monitoring System (PEMS)	Public Health System Support
CDC CCID Immunization Registries (Extramural)	Public Health System Support
CDC CCID Infectious Diseases StarLIMS	Public Health Laboratory Science and Services
CDC CCID Laboratory Response Network (LRN)	Emergency Response
CDC CCID National Healthcare Safety Network	Health Monitoring
CDC CCID National Molecular Subtyping Network for Foodborne Disease Surveillance (PulseNet)	Public Health Laboratory Science and Services
CDC CCID NCHHSTP Admin Systems	Financial Management
CDC CCID NCHHSTP Administrative Support	Financial Management
CDC CCID NCHHSTP Position Description Library	Human Resource Management
CDC CCID NCHHSTP Staff Tracking	Workforce Management
CDC CCID NCIRD Administrative Support	Program Management and Support
CDC CCID NCPDCID Office Automation	Program Management and Support
CDC CCID PH Comm for HIV/AIDS, Viral Hepatitis, STD and TB Prevention	Health Monitoring
CDC CCID PH Comm for Immunization and Respiratory Diseases	Health Monitoring
CDC CCID PH Monitoring for HIV/AIDS, Viral Hepatitis, STD and TB Prevention	Health Monitoring
CDC CCID PH Monitoring for Immunization and Respiratory Diseases	Health Monitoring
CDC CCID PH Monitoring for Preparedness, Detection, and Control of Infectious Diseases	Health Monitoring
CDC CCID PH Monitoring for Zoonotic, Vector-Borne, and Enteric Diseases	Health Monitoring
CDC CCID PH Research for HIV/AIDS, Viral Hepatitis, STD and TB Prevention	Research Operations
CDC CCID PH Research for Preparedness, Detection, and Control of Infectious Diseases	Research Operations
CDC CCID PH Research for Zoonotic, Vector-Borne, and Enteric Diseases	Research Operations
CDC CCID PH Services for HIV/AIDS, Viral Hepatitis, STD and TB Prevention	Public Health System Support
CDC CCID PH Services for Immunization and Respiratory Diseases	Health Monitoring
CDC CCID PH Services for Preparedness, Detection, and Control of Infectious Diseases	Public Health Practice
CDC CCID PH Services for Zoonotic, Vector-Borne, and Enteric Diseases	Public Health Practice
CDC CCID Public Health Laboratory Information System (PHLIS)	Public Health Laboratory Science and Services
CDC CCID Vaccine Adverse Events Reporting System (VAERS)	Health Monitoring
CDC CCID Vaccine Management System (VACMAN)	Emergency Preparedness
CDC CCID Vaccine Tracking System (VTrckS)	Public Health System Support
CDC Centers for Autism (Extramural)	Public Health System Support

IT Investment	Segment
CDC Countermeasure Response Administration System (CRA)	Emergency Response
CDC Director's Emergency Operations Center Support	Emergency Response
CDC Enterprise Architecture	Enterprise Architecture
CDC Enterprise Communication Technology Platform (ECTP)	Public Affairs
CDC Enterprise Security	Information Security
CDC Epi Info	Epidemiology and Other Assessment Sciences
CDC Epidemic Information Exchange (Epi-X)	Public Health Practice
CDC Formulink	Budget/Performance Integration
CDC GDDOC Event Analysis Management System (EAMS)	Health Monitoring
CDC Global Health Business Systems by MISO	Analysis and Reporting
CDC Health Impact Planning (HI.Net/IRIS)	Budget/Performance Integration
CDC IMPAC II - Grants	Grants Management
CDC INFO (formerly Consolidated Consumer Response)	Public Affairs
CDC Information Center Systems	Knowledge Management
CDC Integrated Contracts Expert (ICE)	Financial Management
CDC Integrated Facilities Management System (IFMS)	Facility Management
CDC Intrusion Detection and Assessment System	Physical Security Management
CDC Knowledge Management Platform	Knowledge Management
CDC Management of Employee Resources	Human Resource Management
CDC Management of Workforce Resources (formerly Integrated Analytical Services)	Human Resource Management
CDC Managing Account Credit Card System (MACCS)	Supply Chain Management
CDC National Health and Nutrition Examination Survey (NHANES)	Vital Statistics and Surveys
CDC National Health Interview Survey (NHIS)	Vital Statistics and Surveys
CDC National Select Agent Registry (NSAR) (formerly SATERIS)	Hazardous Materials Safety
CDC National Vital Statistics System (NVSS)	Vital Statistics and Surveys
CDC NCCDPHP Administrative Systems	Financial Management
CDC NCIPC Extramural Tracking System (NEXT System)	Grants Management
CDC Occupational Safety & Health Systems	Research Operations
CDC OD Administrative Support	Program Management and Support
CDC Outbreak Management System (OMS)	Emergency Response
CDC PERFORMS (formerly State and Local Preparedness)	Financial Management
CDC PH Comm for Chronic Disease Prev & Health Promotion	Health Monitoring
CDC PH Comm for Health Marketing	Health Monitoring
CDC PH Comm for Injury Prevention & Control	Public Health Practice
CDC PH Communications for Workforce and Career Development	Workforce Management
CDC PH Monitoring for Birth Defects, Development Disabilities, Disabilities and Health	Health Monitoring
CDC PH Monitoring for Chronic Disease Prevention and Health Promotion	Health Monitoring
CDC PH Monitoring for Environmental Health	Health Monitoring
CDC PH Monitoring for Health Statistics	Health Monitoring
CDC PH Monitoring for Office of Terrorism	Knowledge Creation, Aggregation, and Translation
CDC PH Research for Chronic Disease Prevention & Health Promotion	Epidemiology and Other Assessment Sciences
CDC PH Services for Chronic Disease Prevention and Health	Public Affairs

IT Investment	Segment
Promotion	
CDC PHIN: BioSense	Health Monitoring
CDC PHIN: BioSense Extramural	Public Health System Support
CDC PHIN: LRN Real Time Laboratory Information Exchange	Emergency Response
CDC PHIN: National Electronic Disease Surveillance System	Health Monitoring
CDC PHIN: National Electronic Disease Surveillance System (NEDSS) (Extramural)	Public Health System Support
CDC PHIN: National Environmental Public Health Tracking Network (Extramural)	Public Health System Support
CDC PHIN: National Environmental Public Health Tracking Network (NEPHTN)	Health Monitoring
CDC Physical Access and Security Management by MISO	Physical Security Management
CDC Project Profile (formerly ATSDR Administrative Support)	Financial Management
CDC Property Management System	Facility Management
CDC Public Health Information Network (Extramural)	Public Health System Support
CDC Public Health Information Network (PHIN)	Information Sharing Environment
CDC Receiving, Storing & Staging Inventory Tracking System (RITS)	Emergency Response
CDC Secure Data Network (SDN)	Information Security
CDC Sequoia (formerly Centralized Informanagement System)	Environmental Health
CDC Specimen Tracking and Results Reporting System (STARRS)	Public Health Laboratory Science and Services
CDC Stockpile Resource Planning System (SRP)	Emergency Response
CDC Support of Travel Activities by MISO	Travel
CDC Surveillance, Preparedness, Awareness, and Response System for Vaccines (SPARx)	Emergency Response
CDC Technical Assistance Group (Extramural)	Public Health System Support
CDC Technical Assistance Group (TAG) (formerly HAN and TADA)	Public Health System Support
CDC TOPS (Fin. Mgmt. System)	Financial Management
CDC Visiting Fellows Payroll System (ACCPAC)	Financial Management
CDC Web Management & Application Support for OD	Information Sharing Environment
CDC WONDER (formerly CDC Data Web (WONDER))	Epidemiology and Other Assessment Sciences
CMS Appplications Support Tools (NM)	System Maintenance
CMS ASET/HIPAA Enforcement Tool (NM)	IT Infrastructure
CMS Authentication - IACS	Information Security
CMS Beneficiary Enrollment and Plan Payment for Part C & D	Enrollment and Participation
CMS Beneficiary e-Services	Customer Service
CMS Common Working File (CWF)	Benefits and Claims Management
CMS Conferencing Facility Technical Mgmt (NM)	Information Sharing Environment
CMS Contractor Management Information Systems (NM)	Program Control and Oversight
CMS Contractor Reporting Workload (NM)	Financial Management
CMS Creditable Coverage for Part D (NM)	Enrollment and Participation
CMS Data Management Operations - Beneficiary	System Maintenance
CMS Data Management Operations - Claims	Data Management
CMS Disaster Recovery Support (NM)	Information Security
CMS Document Management (NM)	Records Management
CMS Drug Benefit Management Information (NM)	Analysis and Reporting
CMS Drug Claims (DDPS)	Benefits and Claims Management

IT Investment	Segment
CMS Durable Medical Equipment (DME) Claims Processing	Benefits and Claims Management
CMS Enterprise Architecture (NM)	Enterprise Architecture
CMS FFS Bid Submission System (NM)	Enrollment and Participation
CMS Health Care Quality Improvement System (QIES)	Analysis and Reporting
CMS Healthcare Integrated General Ledger Accounting System (HIGLAS)	Financial Management
CMS HSPD-12 (NM)	Information Security
CMS ICD-10 Initiative	Benefits and Claims Management
CMS Integrated Data Repository (IDR)	Analysis and Reporting
CMS Interoperability & Standardization - Claims	Benefits and Claims Management
CMS Interoperability & Standardization - Provider Enrollment (PECOS)	Enrollment and Participation
CMS Interoperability & Standardization - Provider ID (NPPES)	Enrollment and Participation
CMS Investment Planning/Management Support (NM)	Capital Planning (CPIC)
CMS Medicaid Data Systems	Analysis and Reporting
CMS Medicaid Integrity - MIG (NM)	Program Control and Oversight
CMS Medicaid Management Information System (NM)	Benefits and Claims Management
CMS Medicare Appeals System (MAS)	Benefits and Claims Management
CMS Medicare Fee-For-Service Claims Processing - Support (NM)	System Maintenance
CMS Medicare Integrity Program (MIP)	Program Control and Oversight
CMS Medicare Integrity Program Modernization - One PI System	Program Control and Oversight
CMS Medicare Quality Programs PAC-PAI (NM)	Patient Management
CMS Modernized IT Infrastructure (EDCs)	IT Infrastructure
CMS Operations Support Tools (NM)	Data Management
CMS Part A Claims Processing	Benefits and Claims Management
CMS Part B Claims Processing	Benefits and Claims Management
CMS Personal Health Record - PHR (NM)	Benefits and Claims Management
CMS Plan Enrollment (HPMS)	Enrollment and Participation
CMS Procurement & Property Mgmt (NM)	Program Management and Support
CMS Q-Net	Analysis and Reporting
CMS Research (NM)	Research Operations
CMS Retiree Drug Subsidy	Enrollment and Participation
CMS Systems Security (NM)	Information Security
FDA Administrative Systems Automation Project	Data Management
FDA Advanced Submission Tracking and Review (FASTAR)	Product Review and Approval
FDA Advisory Committee Tracking and Reporting System (FACTRS)	Correspondence Management
FDA Agency Information Management System	Information Sharing Environment
FDA Automated Drug Information Management System	Product Review and Approval
FDA Automated Laboratory Management	Food and Drug Supply Monitoring
FDA Building Access System	Physical Security Management
FDA CBER NonPDUFA Systems	Food and Drug Supply Monitoring
FDA CBER Other PDUFA Systems	Product Review and Approval
FDA CBER PDUFA Electronic Submission Program	Product Review and Approval
FDA CBER PDUFA RMS-BLA	Product Review and Approval
FDA CDER Compliance	Food and Drug Supply Monitoring
FDA CDRH Electronic Submission	Product Review and Approval

IT Investment	Segment
FDA CDRH Mammography Program Reporting Information System	Public Health Practice
FDA CDRH MedSun	Public Health Practice
FDA CDRH PreMarket Modernization Project	Analysis and Reporting
FDA CDRH Tracking System	Product Review and Approval
FDA CFSAN Adverse Events Reporting System	Food and Drug Supply Monitoring
FDA CFSAN Core IT	Food and Drug Supply Monitoring
FDA CFSAN Scientific Computing and Application Interface	Food and Drug Supply Monitoring
FDA CFSAN Supporting and Enabling IT	Food and Drug Supply Monitoring
FDA Common EDR	Knowledge Management
FDA Electronic Gateway	Correspondence Management
FDA Emergency Operations Network	Emergency Response
FDA Facility Management System	Facility Management
FDA FACTS@FDA	Product Review and Approval
FDA Food Application Regulatory Management	Food and Drug Supply Monitoring
FDA Harmonized Inventory	Food and Drug Supply Monitoring
FDA Information and Computing Technologies for the 21st Century (ICT21)	Knowledge Creation, Aggregation, and Translation
FDA Integrated Services for Veterinary Medicine	Product Review and Approval
FDA IT Governance	Capital Planning (CPIC)
FDA IT Security Program	Information Security
FDA MedWatch Plus	Health Monitoring
FDA Mission Accomplishments and Regulatory Compliance Services (MARCS)	Food and Drug Supply Monitoring
FDA NCTR Methods Development Support	Product Review and Approval
FDA NCTR Research Management	Product Review and Approval
FDA NCTR Research Support	Product Review and Approval
FDA Product Quality and Compliance	Food and Drug Supply Monitoring
FDA Regulatory Business Information Services	Food and Drug Supply Monitoring
FDA Science First	Training and Education (Curriculum Development)
FDA Unified Registration and Listing System	Food and Drug Supply Monitoring
FDA User Fee and Financial Reporting System	Financial Management
Federal Health Architecture	Customer Service
Grants.gov - Find and Apply	Grants Management
HHS Capital Planning & Investment Control Program	Capital Planning (CPIC)
HHS Consolidated Acquisition Solution	Supply Chain Management
HHS Consolidated IT Infrastructure	IT Infrastructure
HHS Enterprise Architecture Program	Enterprise Architecture
HHS Enterprise E-mail System (HHSMail)	Information Sharing Environment
HHS Enterprise Initiatives	System Development
HHS HR LOB IT	Human Resource Management
HHS Secure One Program	Information Security
HHS Secure One Support	Information Security
HHS Unified Financial Management System	Financial Management
HHSIdentity	Information Security
HRSA - BCRS Management Information System Support (BMISS)	Customer Service
HRSA - BHPr Building a Database System for the Children's Graduate Medical Education Payment Program (CHGME PP)	Data Management

IT Investment	Segment
HRSA - BHPr Enhancement/Maintenance and Development of the Application Submission and Processing System (ASAPS)	Analysis and Reporting
HRSA - BHPr HEAL The Health Education Assistance Loan/HEAL On-line Processing System	Data Management
HRSA - BHPr National Practitioner Data Bank (NPDB)/Healthcare Integrity and Protection Data Bank (HIPDB)	Customer Service
HRSA - BHPr Upgrade, Replacement and Consolidation of Systems Supporting Campus Based Branch Programs	System Maintenance
HRSA - CQ Knowledge Gateway (HKG)	Knowledge Management
HRSA - HAB Upgrading & Maintaining RW CAREWare	Analysis and Reporting
HRSA - HSB National Organ Procurement and Transplantation Network (OPTN)	Vital Statistics and Surveys
HRSA - HSB Office of Pharmacy Affairs Information System (OPAIS)	Data Management
HRSA - HSB Scientific Registry of Transplantation Recipients (SRTR)	Vital Statistics and Surveys
HRSA - OC Information Center (HRSA IC)	Public Affairs
HRSA - OFM - Integrated Resource Management System (IRMS)	Financial Management
HRSA - OIT Capital Planning and Project Management	Capital Planning (CPIC)
HRSA - OIT COOP (Continuity of Operations)	Data Management
HRSA - OIT Core Business Support System	System Maintenance
HRSA - OIT Electronic Handbooks	Analysis and Reporting
HRSA - OIT Enterprise Architecture (EA)	Enterprise Architecture
HRSA - OIT Federal Information Systems Security Program	Information Security
HRSA - OIT Geospatial Data Warehouse	Geospatial
IHS - National Patient Information Reporting System (NPIRS) - - Maintenance and Enhancements	Analysis and Reporting
IHS Resource and Patient Management System (RPMS) - Maintenance & Enhancements	Patient Care
NIH Business Intelligence System (NBIS)	Data Management
NIH CC Activity Based Costing System	Supply Chain Management
NIH CC ANSOS Automated Nurse	Research Operations
NIH CC Clinical Research Information System (CRIS)	Research Operations
NIH CC Human Resource Support	Human Resource Management
NIH CC PACS/RIS	Research Operations
NIH CC Patient and Research Services	Research Operations
NIH CIT Administrative Database System (ADB)	Financial Management
NIH CIT Central Accounting System (CAS)	Financial Management
NIH CIT National Database for Autism Research (NDAR)	Research Operations
NIH CIT Scientific Coding System OnDemand (SCS)	Research Management
NIH CIT support for ICs	Research Operations
NIH CSR Administrative System Support	Research Management
NIH CSR Assisted Review Support	Research Management
NIH CSR Asynchronous Discussion	Research Management
NIH CSR Automated Referral Workflow System	Research Management
NIH CSR Decision Support	Research Management
NIH CSR Mobile Computing	Research Management
NIH CSR Technical Services Branch Personnel Costs	Research Management

IT Investment	Segment
NIH CSR Web Mgmt	Research Management
NIH Enterprise Architecture Program	Enterprise Architecture
NIH FIC Fogarty International Reporting and Scientific Tracking (FIRST)	Research Management
NIH Integrated Time and Attendance System (ITAS)	Human Resource Management
NIH IT Capital Planning and Investment Control Progam	Capital Planning (CPIC)
NIH IT Security Program	Information Security
NIH NCI Cancer Therapy Evaluation Program (CTEP)	Research Operations
NIH NCI Clinical Trials - Bioinformatics (C3D)	Research Operations
NIH NCI DCEG Information System	Research Management
NIH NCI DCP DESK	Research Management
NIH NCI Electronic Grants File	Grants Management
NIH NCI Fiscal Link Analysis Research Emphasis (FLARE)	Research Management
NIH NCI IMPAC II Extensions	Grants Management
NIH NCI OEFIA Support (formerly EFDB Support)	Research Management
NIH NCI Resource Management	Research Management
NIH NCRR IT Support for NCRR Scientific Mission	Research Operations
NIH NCRR SCIENCE INFORMATION SYSTEM	Research Management
NIH NEI Eye Bank	Research Operations
NIH NEI Grants Management	Grants Management
NIH NHGRI IT Support for Scientific Mission	Research Operations
NIH NHGRI Scientific/Education Resources To Provide The Exchange of Genomic Information	Research Management
NIH NHGRI Technology Planning	Enterprise Architecture
NIH NHLBI Clinical Data System	Research Operations
NIH NHLBI Extramural Program Development	Research Management
NIH NHLBI Intramural Research Application Development	Research Operations
NIH NIA ADAMS Development & Support	Grants Management
NIH NIA FINeX System	Grants Management
NIH NIA IRP Financial Management	Research Management
NIH NIA IRP Mission Support	Research Operations
NIH NIA IRP Other Program Support	Research Operations
NIH NIAID AMBIS, AMBIS Lite	Financial Management
NIH NIAID Bioinfomatics Analysis Management Suite	Research Operations
NIH NIAID Cage Inventory System	Research Operations
NIH NIAID Clinical Trial Data Management Suite	Research Operations
NIH NIAID Collaboration Support Services	Knowledge Management
NIH NIAID Controlled Correspondence	Knowledge Management
NIH NIAID HIV and Infectious Agent Collaborative Research Response Capability Management System	Research Operations
NIH NIAID INRO3	Research Management
NIH NIAID Knowledge Inspiration, Storage and Retrieval	Knowledge Management
NIH NIAID LUCY (Animal Care Protocol & Facility Management System (ACPFMS))	Research Operations
NIH NIAID Planning & Reporting System (consolidated CAAP, Council etc.)	Research Management
NIH NIAID Research Initiative Management System (RIMS)	Research Management
NIH NIAID RSS	Research Management
NIH NIAID Scientific Reporting Suite	Research Management

IT Investment	Segment
NIH NIAID Strategic Issue Management	Research Management
NIH NIAID TBRS Imaging	Research Management
NIH NIAID VRC Support Suite (VRCSS)	Research Management
NIH NIAID Workflow	Human Resource Management
NIH NIAMS Clinical Studies Data Management	Research Operations
NIH NIAMS Extramural Program IMPAC II Reporting System	Research Management
NIH NIAMS Hardware/Software Acquisitions for New Technologies	System Development
NIH NIAMS IT Personnel Cost Supporting Mission Activities	Analysis and Reporting
NIH NIAMS IT Support for Internal Research Mission	Research Management
NIH NIAMS ORACLE Reporting and SEA Coding System	Research Management
NIH NIAMS Planning and Analysis	Enterprise Architecture
NIH NIAMS Thin Client Application Development Staff	Research Management
NIH NIBIB Thin client public information disemination system	Research Management
NIH NICHD Child Health Information Retrieval Program (CHIRP)	Research Management
NIH NICHD Extramural Tracking System (now called CERES)	Grants Management
NIH NIDA Extramural Project System (NEPS)	Research Management
NIH NIDA HQ Technical Support and Services for NIDA	Research Operations
NIH NIDA Intramural Research Program (IRP)	Research Operations
NIH NIDCD Unix Support	System Maintenance
NIH NIDCD Website Support	System Maintenance
NIH NIDCR Planning and Management	Enterprise Architecture
NIH NIDCR Science Coding Activities	Research Management
NIH NIDDK Nutrition tracking database HNRIM	Research Management
NIH NIEHS Budget management support systems	Research Management
NIH NIEHS INTRAMURAL Laboratory Research Support	Research Operations
NIH NIEHS National Toxicology Program Databases	Research Operations
NIH NIEHS National Toxicology Program Toxicology Data Management System (TDMS)	Research Operations
NIH NIEHS Small Program Support Systems	Research Operations
NIH NIEHS Toxicogenomics Database	Research Operations
NIH NIGMS Administrative Small Projects	Knowledge Management
NIH NIGMS CIO, Management, Overhead and Strategic Planning	Enterprise Architecture
NIH NIGMS Community Access to Graduate Training System (CAGT)	Research Management
NIH NIGMS Crystal Reports Conversion	Research Management
NIH NIGMS Document Management/Workflow System	Knowledge Management
NIH NIGMS Employee Directory (GMED)	Human Resource Management
NIH NIGMS Extramural Small Projects	Research Management
NIH NIGMS Extramural Support Systems	Research Management
NIH NIGMS Grantee E-Mail System (GEMS)	Research Management
NIH NIGMS Integrated Software and Equipment Tracking System (ISETS)	IT Infrastructure
NIH NIGMS Internet Employee Directory (NIED)	Research Management
NIH NIGMS Intranet Support and Portal Migration	Knowledge Management
NIH NIGMS MDR Supplements System	Grants Management
NIH NIGMS Meeting Registration System	Research Management

IT Investment	Segment
NIH NIGMS Metalayer Download	Research Management
NIH NIGMS OCPL Image Gallery	Research Management
NIH NIGMS OCPL Mailing List Database (OMLD)	Research Management
NIH NIGMS Pharmacology Research Associate Tracking System	Research Management
NIH NIMH Grants Management System	Grants Management
NIH NIMH Support & Services	Research Operations
NIH NINDS Branch Operation Expenses	IT Infrastructure
NIH NINDS Contractor Support for Financial Management	Strategic Planning
NIH NINDS Information Systems for Council Support	Research Management
NIH NINDS Information Technology Planning	Strategic Planning
NIH NINDS Management Information Systems Development	System Development
NIH NINDS Non-Public Information Dissemination Services	Research Management
NIH NLM Biology Research	Research Operations
NIH NLM BLAST	Research Operations
NIH NLM Clinical Trials	Research Operations
NIH NLM Entrez Molecular Biology Website	Research Operations
NIH NLM Genome Assembly and Annotation (GenBank)	Knowledge Creation, Aggregation, and Translation
NIH NLM Health Information Systems	Health Monitoring
NIH NLM Image Processing	Research Operations
NIH NLM Informatics IT Infrastructure	Research Operations
NIH NLM Infrastructure Planning	Enterprise Architecture
NIH NLM INFRASTRUCTURE RESEARCH	Research Operations
NIH NLM MEDLARS Information Systems Support	Health Monitoring
NIH NLM Molecular Biology IT Support	Research Operations
NIH NLM Multimedia Visualization	Research Operations
NIH NLM Protein Structure Analysis	Research Operations
NIH NLM PubChem	Research Operations
NIH NLM PUBMED	Research Operations
NIH NLM PUBMED Central	Research Operations
NIH NLM TOXICOLOGY DATA NETWORK	Public Health Practice
NIH NLM United Medical Language System	Research Operations
NIH OD CCR Windows Based Program	Human Resource Management
NIH OD Electronic Research Administration (eRA)	Grants Management
NIH OD Ethics NEES (NIH Enterprise Ethics System)	Human Resource Management
NIH OD Information Repositories	Research Management
NIH OD NIH Business System (NBS)	Financial Management
NIH OD NIH Intramural Database (NIDB)	Research Management
NIH OD OAR Systems	Research Management
NIH OD OB Disease Database	Research Management
NIH OD ODP Dietary Supplement Label Database (DSLD)	Public Health Practice
NIH OD ODP/ODS CARDS (Computer Access to Research on Dietary Supplements)	Research Management
NIH OD ODP/ODS GEMS (Grants Efficiency Management System)	Research Management
NIH OD ODP/ODS IBIDS (International Bibliographic Information on Dietary Supplements)	Research Management
NIH OD ODP/ORD System Information Center	Research Management
NIH OD OEODM Complaint & Student Tracking Systems	Human Resource Management

IT Investment	Segment
NIH OD OEODM Training	Human Resource Management
NIH OD OER/OAO eCARES (Extramural Community Action Request System)	Research Management
NIH OD OIR CME (Continuing Medical Education)	Human Resource Management
NIH OD OIR OITE (Office of Intramural Training & Education)	Human Resource Management
NIH OD OIR/OTT TechTraks	Technology Transfer
NIH OD OM/OA Contractor Performance System	Supply Chain Management
NIH OD OM/OA C-RADS (Commercial Rate Agreement Distribution Services)	Research Management
NIH OD OM/OA/OLAO NITAAC E-GOS (E-Government Ordering System)	Supply Chain Management
NIH OD OM/OA/OLAO Purchase Card System	Supply Chain Management
NIH OD OM/OFM Viewstar	Financial Management
NIH OD OM/OHR Actions, Training, & Reports Data	Human Resource Management
NIH OD OM/OHR Human Resources Data Base	Human Resource Management
NIH OD OM/OHR WiTS	Human Resource Management
NIH OD OM/OMA Delegations of Authority DataBase	Rules and Regulations Development
NIH OD OM/OMA Integrated DB	Rules and Regulations Development
NIH OD OM/OMA TeamMate Software	Rules and Regulations Development
NIH OD OM/OSMP EOIP (Employee Orientation and Information Program)	Human Resource Management
NIH OD OM/OSMP NIH Integrated Training System (NIHITS)	Human Resource Management
NIH OD OSP/OBA GeMCRIS (Genetic Modification Clinical Research Information System)	Research Operations
NIH OD OSP/SSPP PPMS (Program Performance Monitoring System)	Performance Management
NIH OD Research Condition and Disease Classification (RCDC)	Research Management
NIH OD System for Enterprise Records and Correspondence Handling (SERCH)	Correspondence Management
NIH OER DLR (Division of Loan Repayment) Loan Repayment Programs (LRP) Website	Research Management
NIH ORFDO Administer Property Management Service Provider's performance -- (S/O)	Facility Management
NIH ORFDO Improve environmental quality -- (S/O)	Facility Management
NIH ORFDO Manage design and construction	Facility Management
NIH ORFDO Manage policy/assess for delivery/ops of owned/leased facilities -- (S/O)	Facility Management
NIH ORFDO Manage waste stream -- (S/O)	Facility Management
NIH ORFDO Perform master and facilities planning (S/O)	Facility Management
NIH ORFDO Plan and implement long term facility stewardship -- (S/O)	Facility Management
NIH ORFDO Plan campus repairs, extensions, and improvements -- (S/O)	Facility Management
NIH ORFDO Provide construction acquisition services -- (S/O)	Facility Management
NIH ORFDO Purchase, lease, and dispose of real estate (S/O)	Facility Management
NIH ORS Maintain Safe Working Environment	Facility Management
NIH ORS Manage and administer worksite enrichment programs (S/O)	Facility Management
NIH ORS Manage property management finances -- (S/O)	Facility Management
NIH ORS Manage travel, transportation and parking programs	Facility Management

IT Investment	Segment
and services (S/O)	
NIH ORS Plan emergency preparedness strategies -- (S/O)	Continuity of Operations
NIH ORS Provide Animal Care and Veterinary Services	Research Operations
NIH ORS Provide Comprehensive Print & Digital Media Services	Supply Chain Management
NIH ORS Provide fire/rescue/hazardous incident readiness/response svcs -- (S/O)	Physical Security Management
NIH ORS Provide Library Services	Research Operations
NIH ORS Provide NIH events management services	Facility Management
NIH ORS Provide physical security for the NIH -- (S/O)	Physical Security Management
NIH ORS Provide police services -- (S/O)	Physical Security Management
NIH ORS Provide Scientific Equipment and Instrumentation Services	Public Health Laboratory Science and Services
NIH ORS Provide security guard services -- (S/O)	Physical Security Management
NIH ORS Provide support svcs to security/fire/police and emergency mgmt -- (S/O)	Physical Security Management
NIH ORS Support foreign staff exchange program (S/O)	Human Resource Management
NIH Status of Funds Internet Edition (SOFIE)	Budget/Performance Integration
NIH Visual Employee Database (VEDS)	Human Resource Management
NIH Visual Status of Funds (VSOF) System	Budget/Performance Integration
OIG Data Analysis Processing	Inspections and Auditing
OIG Investigative & Audit Workstations	System Maintenance
OIG Investigative Support / Forensics	Program Control and Oversight
OIG Management Applications	System Development
OIG Mission Systems	System Maintenance
OIG Security Implementation	Continuity of Operations
OIG Security Program	Information Security
OIG Small / Other Projects for Infrastructure	IT Infrastructure
OS ASAM Access Control Tracking System (ACTS)	Human Resource Management
OS ASAM Accounting for Pay System (AFPS)	Financial Management
OS ASAM Acquisition Purchase Request Information System (PRISM)	Program Management and Support
OS ASAM Automated Employee Appraisal System	Human Resource Management
OS ASAM Core Accounting System (CORE)	Financial Management
OS ASAM Debt Management and Collection System (DMCS)	Financial Management
OS ASAM Departmental Contracts Information System (DCIS)	Analysis and Reporting
OS ASAM E-Gov Travel Support Center of Excellence (COE)	Travel
OS ASAM E-Induction	Human Resource Management
OS ASAM Electronic Official Personnel Folder	Human Resource Management
OS ASAM Elite Series	Supply Chain Management
OS ASAM Enterprise Human Resources and Personnel	Human Resource Management
OS ASAM Enterprise Performance Management	Human Resource Management
OS ASAM Enterprise Workflow Information Tracking System (EWITS)	Human Resource Management
OS ASAM Fair Act Collection System	Analysis and Reporting
OS ASAM Fee-for-Service Spreadsheets (FFSS2)	Program Management and Support
OS ASAM FOH Other Client Services' Applications	Program Management and Support
OS ASAM HHS Asset - Property Management Information System (PMIS - Sunflower)	Supply Chain Management

IT Investment	Segment
OS ASAM iComplaints	Human Resource Management
OS ASAM Integrated Time and Attendance System (ITAS)	Human Resource Management
OS ASAM IT Security Program	Information Security
OS ASAM Learning Management System (LMS)	Training and Education (Delivery)
OS ASAM Managing/Accounting Credit Card System (MACCS)	Program Management and Support
OS ASAM Medical Evaluation/Requirements Information Tracking System (MERITS)	Program Management and Support
OS ASAM Parklawn Security System (MDI)	Physical Security Management
OS ASAM Payment Management System (PMS)	Financial Management
OS ASAM POIS/Service Tracking Management (STM) Modernization	Program Management and Support
OS ASAM PropShop - Web Ordering System	Supply Chain Management
OS ASAM Quick Hire/Quick Class (QH/QC)	Human Resource Management
OS ASAM Revenue, Invoicing, and Cost Estimation System (PRICES)	Program Management and Support
OS ASAM Web Warehouse Inventory Management System (WebWIMS)	Supply Chain Management
OS ASPA HHS FOIA Tracking	Privacy Management
OS ASPA HHS Web Management Investment	Knowledge Management
OS ASPE Web Investment	Program Management and Support
OS ASPR Management Tools	Program Management and Support
OS ASPR MedicalCounterMeasures.gov	Program Management and Support
OS ASPR National Hospital Preparedness Evaluation Initiative	Analysis and Reporting
OS ASRT Information Collection Request, Review and Approval System	Program Management and Support
OS ASRT Program Performance Tracking System	Budget/Performance Integration
OS ASRT Tracking Accountability in Government Grants System (TAGGS)	Grants Management
OS DAB Automated Case Tracking	Program Management and Support
OS OCR Program Information Management System	Program Management and Support
OS OGC Matter Tracking System (MTS)	Program Management and Support
OS OGC Online Legal Research Services	Program Management and Support
OS ONC Nationwide Health Information Network (NHIN)	Information Sharing Environment
OS ONC Standards & Certification for Health IT	Rules and Regulations Development
OS OPHS Commissioned Corps Force Management Solution	Workforce Management
OS OPHS Commissioned Corps Payroll (CCPayroll)	Human Resource Management
OS OPHS Commissioned Officers Personnel and Payroll Systems (COPPS)	Human Resource Management
OS OPHS healthfinder.gov Web site	Public Affairs
OS OPHS OWH Websites Communications Initiative	Public Affairs
PMA e-Gov Business Gateway - HHS Contribution	Education and Outreach
PMA e-Gov Disaster Assistance Improvement Plan - HHS contribution	Disaster Management
PMA e-Gov E-Rulemaking - HHS Contribution	Rules and Regulations Development
PMA e-Gov Gov Benefits - HHS contribution	Program Management and Support
PMA e-Gov Integrated Acquisition - HHS contribution	Program Management and Support
PMA e-Gov Integrated Acquisition - Loans & Grants- HHS Contribution	Program Management and Support
PMA LoB Budget Formulation and Execution - HHS	Budget/Performance Integration

IT Investment	Segment
Contribution	
PMA LoB Financial Management - HHS contribution	Financial Management
PMA LoB Geospatial - HHS Contribution	Geospatial
PMA LoB Grants Management - HHS contribution	Grants Management
PMA LoB Human Resource Management - HHS contribution	Human Resource Management
PMA LoB IT Infrastructure - HHS Contribution	IT Infrastructure
SAMHSA - CMHS / CSAP NMHIC/NCADI Websites	Health Monitoring
SAMHSA - CMHS A national Evaluation of the Safe Schools/Healthy Student Inititiative	Health Monitoring
SAMHSA - CMHS Community Mental Health Services Block Grant Monitoring	Provider Management
SAMHSA - CMHS Community Mental Health Services Block Grant Review	Provider Management
SAMHSA - CMHS Community Support Resource Center	Patient Care
SAMHSA - CMHS Coordinating Center to Support State Incentive Grant Entitled: Alternatives	Provider Management
SAMHSA - CMHS Cross-Site Evaluation of The National Child Traumatice Stress Initiative	Program Management and Support
SAMHSA - CMHS Data Collection and Analysis for Alternatives to Restraint and Seclusion Grant	Analysis and Reporting
SAMHSA - CMHS DSSI Knowledge Synthesis, Documentation & Marketing	Knowledge Creation, Aggregation, and Translation
SAMHSA - CMHS Eliminating Mental Health Disparities	Patient Care
SAMHSA - CMHS Evaluation of Mental Health Transformation State Incentive Grant (MHT SIG)	Provider Management
SAMHSA - CMHS Evaluation of the mental health Transformation Grants for the FY06 Cohort	Provider Management
SAMHSA - CMHS Evaluation of the Projects for Assistance in Transition from Homeless (PATH) Program	Program Control and Oversight
SAMHSA - CMHS Evaluation of two CMHS Mental Health HIV/AIDS Programs	Program Control and Oversight
SAMHSA - CMHS Integrating Behavioral Health and Primary Care Services for Individuals with Mental Illnes (IBHPC)	Benefits and Claims Management
SAMHSA - CMHS Knowledge Application and Transfer for Youth Violence and Suicide	Knowledge Management
SAMHSA - CMHS Logistics and Administrative Support Services for the Child, Adolescent and Family Branch.	Program Management and Support
SAMHSA - CMHS Logistics Support for the Division of Prevention, Traumatic Stress and Special Programs	Program Management and Support
SAMHSA - CMHS Medicaid Mental Health/Substance Abuse Services	Patient Care
SAMHSA - CMHS Mental health Public Education: National Anti-Stigma Campaign and the Voice Awards	Training and Education (Curriculum Development)
SAMHSA - CMHS National Evaluation of The Comprehensive Community Mental Health Services Program for Children and Their Families	Social Services
SAMHSA - CMHS National Resource and Training Center on Homelessness	Social Services
SAMHSA - CMHS Native Aspirations Evaluation	Social Services
SAMHSA - CMHS PAIMI Monitoring Logistics-P&A for Individuals with Mental Illness Program	Social Services
SAMHSA - CMHS Program and Administrative Support for DPTSSP and OPPB	Public Health System Support
SAMHSA - CMHS Protection and Advocacy for Individuals with Mental Illness (PAIMI) Application Review	Program Management and Support

IT Investment	Segment
SAMHSA - CMHS Shared Decision Making: Making Recovery Real in Mental Health Care	Social Services
SAMHSA - CMHS Social marketing/Communication technical Assistance for the Comprehensive Community Mental Health for Children and their Families	Education and Outreach
SAMHSA - CMHS Suicide Prevention Assessment and Resource Kit (SPARK)	Social Services
SAMHSA - CMHS The 2006 Survey of Mental Health Organizations	Social Services
SAMHSA - CMHS Training and Technical Assistance Center for The Comprehensive Community Mental Health Services Program for Children and Their Families	Social Services
SAMHSA - CMHS Transformation Center	Health Monitoring
SAMHSA - CMHS Transformation Transfer Initiative (TTI)	Health Monitoring
SAMHSA - CSAP Border Initiative	Policy Development
SAMHSA - CSAP Federal Drug-free Workplace Program Services Support	Program Management and Support
SAMHSA - CSAP Fetal Alcohol Spectrum Disorders (FASD) Center for Excellence	Program Management and Support
SAMHSA - CSAP NASADAD Technical Assistance Contract	Benefits and Claims Management
SAMHSA - CSAP National and Regional System for the Application of Prevention Technologies	Public Health System Support
SAMHSA - CSAP National Laboratory Certification Program	Benefits and Claims Management
SAMHSA - CSAP Native American Center for Excellence - Prevention Technical Assistance	Program Management and Support
SAMHSA - CSAP Office of the Director Assistance, Planning, and Implementation Support Project	Program Management and Support
SAMHSA - CSAP Strategic Prevention Framework Advacement and Support Task Order - (roll to Synar)	Program Management and Support
SAMHSA - CSAP Substance Abuse and Mental Health Older American Assistance Center	Program Management and Support
SAMHSA - CSAP The Strategic Dissemination Initiative: Preventing Underage Alcohol Use	Program Management and Support
SAMHSA - CSAP U.S. Counties along the Mexican Border Initiative	Benefits and Claims Management
SAMHSA - CSAP Workplace Prevention and Early Intervention GetFit Learning	Patient Care
SAMHSA - CSAP Workplace Prevention and Early Intervention Transitioning Youth into the Workplace -	Patient Care
SAMHSA - CSAT Assertive Adolescent and Family Treatment Grant Assessment, Clinical Training, Coaching, Monitoring and Cert.	Training and Education (Delivery)
SAMHSA - CSAT Cntr Child Welfare and SA -	Provider Management
SAMHSA - CSAT Co-occuring Cross-Training and Technical Assistance Center -	Training and Education (Curriculum Development)
SAMHSA - CSAT Dev Spending Est MH and SAT -	Training and Education (Curriculum Development)
SAMHSA - CSAT Drug Addiction Treatment Act of 2000 (DATA) Waiver Processing and Support Project	Patient Care
SAMHSA - CSAT Emergent Issues in Addiction Treatment With Opioids: Drug Associated Mortality, Drug Interactions, Co-morbidities, Co-occurring Disorders, and Other Problems	Patient Care
SAMHSA - CSAT Enhancing Substance Abuse Treatment Services to Address Hepatitis Infection Among Intravenous Drug Users (IDUs)	Patient Care
SAMHSA - CSAT Evaluation of the Access to Recovery Program (ATR)	Program Control and Oversight

IT Investment	Segment
SAMHSA - CSAT Evaluation of the Addiction Technology Transfer Centers (ATTCs)	Performance Management
SAMHSA - CSAT Hepatitis C Training of Staff of Opioid Treatment Programs	Training and Education (Curriculum Development)
SAMHSA - CSAT IT Support for SAMHSA's Web-based Block Grant Application System (BGAS) / WebBGAS	Provider Management
SAMHSA - CSAT Knowledge Application Program (KAP)	Knowledge Creation, Aggregation, and Translation
SAMHSA - CSAT Logis and Admin Support Serv -	Program Control and Oversight
SAMHSA - CSAT Modification to SAIS for PPG-PILOT and ATR	Analysis and Reporting
SAMHSA - CSAT National Center on Substance Abuse and Child Welfare	Program Management and Support
SAMHSA - CSAT National Evaluation of SAMHSA's Co-Occuring State Infrastructure Grant Program	Provider Management
SAMHSA - CSAT Opioid Treatment Accreditation and Certification Program Technical Assistance-	Program Management and Support
SAMHSA - CSAT Opioid Treatment Technical Assistance Project	Patient Care
SAMHSA - CSAT Performance Assessment of SAMHSA - Approved Accrediation Bodies	Program Management and Support
SAMHSA - CSAT Phast II: Continuation of Evaluation of and Technical Assistance for Program Rehabilitation and Restitution Cooperative Agreement Program, GFA No TI-01-002	Program Management and Support
SAMHSA - CSAT Planning and Implementation Support Project	Program Control and Oversight
SAMHSA - CSAT Recovery Month Support-Contract-	Program Control and Oversight
SAMHSA - CSAT Scientific, Technical and Logistical Support Related to Knowledge Application and Science to Service Activities	Program Management and Support
SAMHSA - CSAT Screening, Brief Intervention, Brief Treatment, Treatment Evaluation (SBIRT Eval)	Patient Care
SAMHSA - CSAT Services Accountability Improvement System (SAIS)	Analysis and Reporting
SAMHSA - CSAT State AOD Syst Tech Review -	Analysis and Reporting
SAMHSA - CSAT State System Technical Assistance Projects	Analysis and Reporting
SAMHSA - CSAT Supporting Treatment Strategies to Address Prescription Drug Misuse and Abuse	Patient Care
SAMHSA - CSAT TA Services for Systems Improvement Branch, Division of Services Improvement Activities and Its Grantees -	Data Management
SAMHSA - CSAT Tech Support on Women, Children and Families with SUDs	System Maintenance
SAMHSA - CSAT Technical and Administrative Support Services for Qualitly Improvement and Financing Programs	System Maintenance
SAMHSA - CSAT Technical Assistance for Vouchers	Provider Management
SAMHSA - CSAT Technical Assistance Services for Cooccuring and Homeless Activities Branch (CHAB) and its Grantees-	Provider Management
SAMHSA - CSAT Technical Support for CSAT's OPIOID Treatment Program Accreditation and Certification Project	Provider Management
SAMHSA - OA Communications Materials Development and Marketing Task Order -	Training and Education (Curriculum Development)
SAMHSA - OA Materials Development and Media Support	Social Services
SAMHSA - OA National Registry of Evidence-Based Programs and Practices (NREPP)	Data Management

IT Investment	Segment
SAMHSA - OA SAMHSA News-	Public Affairs
SAMHSA - OAS Drug Abuse Warning Network (DAWN)	Patient Management
SAMHSA - OAS Drug and Alcohol Services Information System (DASIS)	Data Management
SAMHSA - OAS National Survey on Drug Use and Health (NSDUH)	Vital Statistics and Surveys
SAMHSA - OPS Non-Financial Administrative Systems	Data Management
SAMHSA - OPS ACIS	System Maintenance
SAMHSA - OPS Award Nomination	System Maintenance
SAMHSA - OPS Contract Review and Administration Support-	Program Management and Support
SAMHSA - OPS Correspondence Control System	System Maintenance
SAMHSA - OPS CPIC Support	Program Management and Support
SAMHSA - OPS EA Support	Program Management and Support
SAMHSA - OPS Financial Support Services for Modification to OMB Circular A-123 Implementation	Financial Management
SAMHSA - OPS IRMS	Financial Management
SAMHSA - OPS Logistical, Administrative, and Materials Production Support Svcs for OA, OAS and OPS	Program Management and Support
SAMHSA - OPS Security Program	Program Management and Support
SAMHSA - OPS Staff Resources	Program Management and Support
SAMHSA - OPS Technical Support Services	System Maintenance
SAMHSA - OPS Web/Inter/Intra	System Maintenance
SAMHSA CMHS - Logistics Support for the Division of Prevention, Traumatic Stress, and Special Programs Suicide Prevention and Youth Violence Prevention Initiatives	Public Health Practice

Appendix C HHS SEGMENT ALIGNMENT TO THE FEDERAL TRANSITION FRAMEWORK

Table 18: HHS Segments Aligned to FTF Initiatives

FTF Initiative	HHS Segments
Budget Formulation and Execution Line of Business	Budget-Performance Integration
	Financial Management
	Strategic Planning
	Supply Chain Management
Business Gateway	Food and Drug Supply Monitoring
Case Management Line of Business	Data Management
	Food and Drug Supply Monitoring
	Social Services
	Strategic Planning
Disaster Assistance Improvement Plan	Disaster Management
	Emergency Response
	Food and Drug Supply Monitoring
	Information Security
	Knowledge Creation, Aggregation, and Translation
	Physical Security Management
	Public Affairs
	Strategic Planning
Disaster Management	Continuity of Operations
	Disaster Management
	Emergency Preparedness
	Emergency Response
	Food and Drug Supply Monitoring
	Information Security
	Knowledge Creation, Aggregation, and Translation
	Physical Security Management
	Public Affairs
	Strategic Planning
E-Authentication	Correspondence Management
	Information Security
	Strategic Planning
Enterprise HR Integration	Human Resources Management
E-Records Management	Records Management
E-Rulemaking	Rules and Regulation Development
E-Training	Training and Education (Curriculum)
	Training and Education (Delivery)
E-Travel	Food and Drug Supply Monitoring
	Strategic Planning

	Travel
Federal Health Architecture (FHA)	Analysis and Reporting
	Benefits and Claims Management
	Budget-Performance Integration
	Data Management
	Emergency Response
	Enrollment and Participation
	Hazardous Materials Safety
	Health Monitoring
	Information Sharing Environment
	IT Infrastructure
	Knowledge Creation, Aggregation, and Translation
	Knowledge Management
	Patient Care
	Product Review and Approval
	Public Affairs
	Public Health Practice
	Public Health System Support
	Research Operations
	Rules and Regulation Development
	Strategic Planning
	Vital Statistics and Surveys
Financial Management Line of Business	Budget-Performance Integration
	Financial Management
	Food and Drug Supply Monitoring
	Strategic Planning
	Supply Chain Management
Geospatial Line of Business	Emergency Response
	Epidemiology and Other Assessment Sciences
	Food and Drug Supply Monitoring
	Geospatial
	Strategic Planning
Geospatial One-Stop	Epidemiology and Other Assessment Sciences
	Food and Drug Supply Monitoring
	Geospatial
	Strategic Planning
Grants Management Line of Business	Food and Drug Supply Monitoring
	Grants Management
	Research Management
	Research Operations

	Strategic Planning
Grants.gov	Grants Management
	Research Management
	Research Operations
	Strategic Planning
HSPD-12	Food and Drug Supply Monitoring
	Information Security
	IT Infrastructure
	Physical Security Management
	Strategic Planning
Human Resources Line of Business	Food and Drug Supply Monitoring
	Human Resources Management
	IT Infrastructure
	Workforce Management
	Strategic Planning
Information Sharing Environment (ISE)	Analysis and Reporting
	Data Management
	Food and Drug Supply Monitoring
	Health Monitoring
	Human Resources Management
	Information Sharing Environment
	IT Infrastructure
	Knowledge Creation, Aggregation, and Translation
	Knowledge Management
	Patient Care
	Research Operations
	Strategic Planning
Information Systems Security (ISS) Line of Business	Food and Drug Supply Monitoring
	Information Security
	IT Infrastructure
	Knowledge Creation, Aggregation, and Translation
	Strategic Planning
Integrated Acquisition Environment (IAE)	Food and Drug Supply Monitoring
	Knowledge Creation, Aggregation, and Translation
	Strategic Planning
	Supply Chain Management
Internet Protocol Version 6 (IPv6)	Food and Drug Supply Monitoring
	Information Security
	IT Infrastructure
	Strategic Planning

IT Infrastructure Line of Business	Food and Drug Supply Monitoring
	IT Infrastructure
	Strategic Planning

Appendix D ACRONYMS AND ABBREVIATIONS

Table 19: Acronyms and Abbreviations

ACF	Administration for Children and Families
AOA	Administration on Aging
AHRQ	Agency for Healthcare Research and Quality
ASPR	Assistant Secretary for Preparedness and Response
ASRT	Assistant Secretary for Resources and Technology
ATSDR	Agency for Toxic Substances and Disease Registry
BRM	Business Reference Model
CCA	Clinger-Cohen Act of 1996 (Information Technology Management Reform Act)
CDC	Centers for Disease Control and Prevention
CEA	Chief Enterprise Architect
CFO	Chief Financial Officer
CHI	Consolidated Health Informatics
CIO	Chief Information Officer
CISO	Chief Information Security Officer
CMS	Centers for Medicare and Medicaid Services
CPIC	Capital Planning and Investment Control
CRM	Consolidated Reference Model
CTO	Chief Technology Officer
DASIT	Deputy Assistant Secretary for Information Technology
DRM	Data Reference Model
E-Gov	Electronic Government
EA	Enterprise Architecture
EASR	Enterprise Architecture Segment Report
EHRP	Enterprise Human Resources and Personnel System
EPLC	Enterprise Performance Life Cycle
FDA	Food and Drug Administration
FEA	Federal Enterprise Architecture
FHA	Federal Health Architecture
FIPS	Federal Information Processing Standard
FISMA	Federal Information Security Management Act of 2002 (E-Government Act)
FSAM	Federal Segment Architecture Methodology
FTF	Federal Transition Framework
GAO	Government Accountability Office
GPRA	Government Performance Results Act of 1993

HIPAA	Health Insurance Portability and Accountability Act of 1996
HITSP	Health Information Technology Standards Panel
HHS	Health and Human Services
HR	Human Resources
HRSA	Health Resources and Services Administration
HSPD-12	Homeland Security Presidential Directive 12
IHS	Indian Health Services
IRM	Information Resources Management
IT	Information Technology
ITIRB	Information Technology Investment Review Board
ITSC	Information Technology Services Center
LOB	Line of Business
NBS	NIH Business System
NIH	National Institutes of Health
NIST	National Institute for Standards and Technology
OCIO	Office of the Chief Information Officer
OEA	Office of Enterprise Architecture
OIG	Office of the Inspector General
OMB	Office of Management and Budget
ONC	Office of the National Coordinator for Health Information Technology
OPDIV	Operating Division
OS	Office of the Secretary
PMA	President's Management Agenda
PRM	Performance Reference Model
PSC	Program Support Center
RPMS	Resource and Patient Management System
SAMHSA	Substance Abuse and Mental Health Services Administration
SOA	Service-Oriented Architecture
SRM	Service Component Reference Model
SSP	Shared Service Provider
STAFFDIV	Staff Division
TRM	Technical Reference Model
UFMS	Unified Financial Management System

Appendix E REFERENCES

Table 20: References

Reference
HHS Information Resources Management Strategic Plan 2007-2012
HHS Performance Management Plan
HHS OCIO Policy for IT Capital Planning and Investment Control
HHS OCIO CPIC Procedures
HHS Enterprise Performance Life Cycle
HHS OCIO IT Policy for Enterprise Architecture
HHS Information Security Program Policy
HHS Transition Strategy
HHS EA Program Management Plan
HHS EA Configuration Management Plan
HHS EA Communications and Outreach Plan
HHS EA Segment Architecture Development Methodology
HHS EA Framework
HHS EA Modeling Guide
Federal Enterprise Architecture Consolidated Reference Model v2.1
Federal Transition Framework v2.0
Federal Enterprise Architecture Practice Guidance
Enterprise Architecture Assessment Framework v3.1